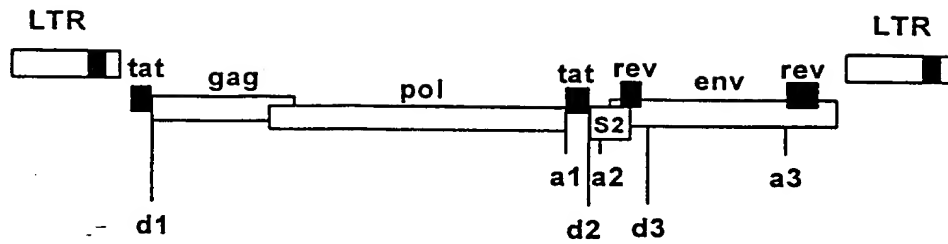
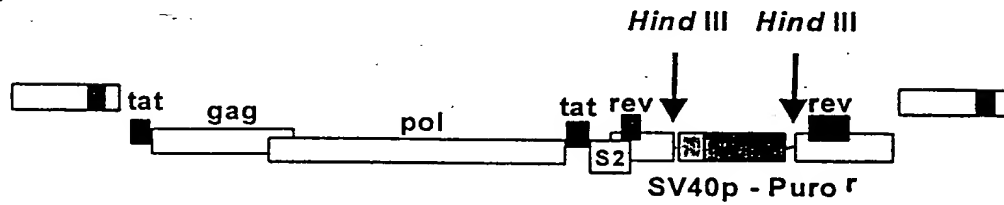


Figure 1

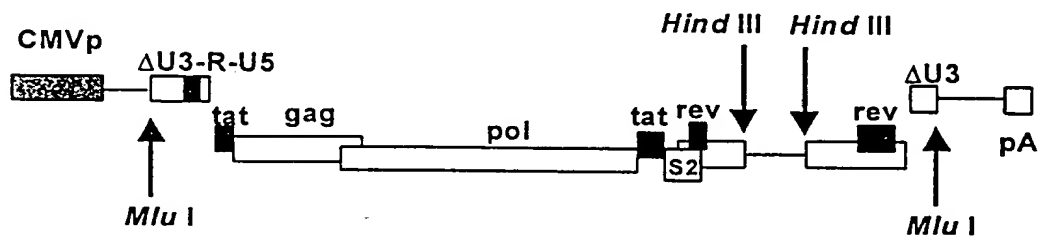
# EIAV genome



## pESP



## pONY3



## pONY2.1nls/lacZ

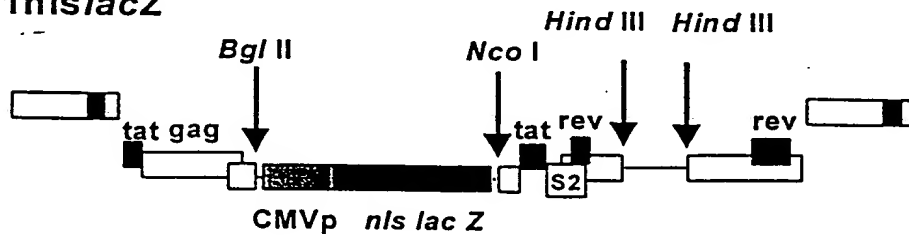
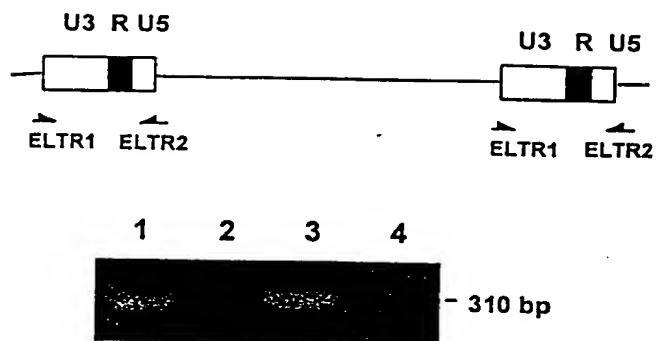


Figure 2

**A. LTR**



**B. pol**

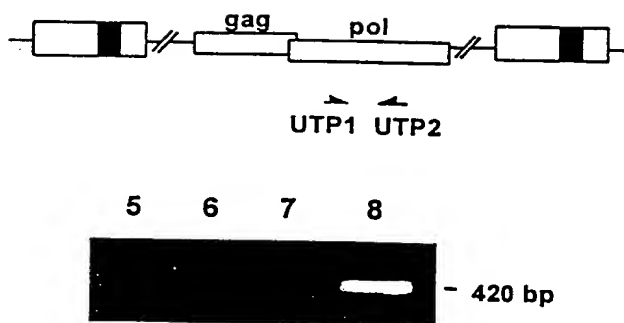
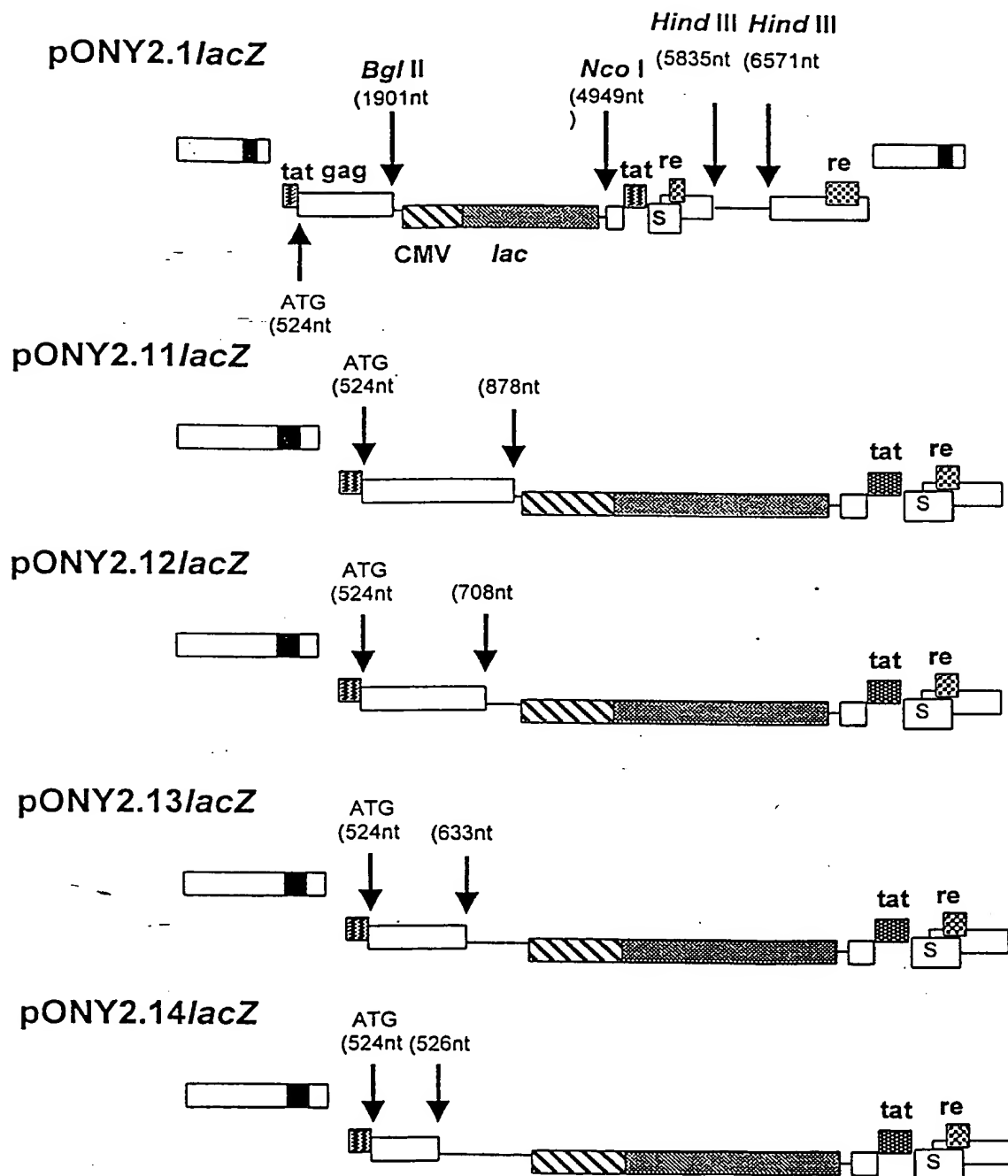
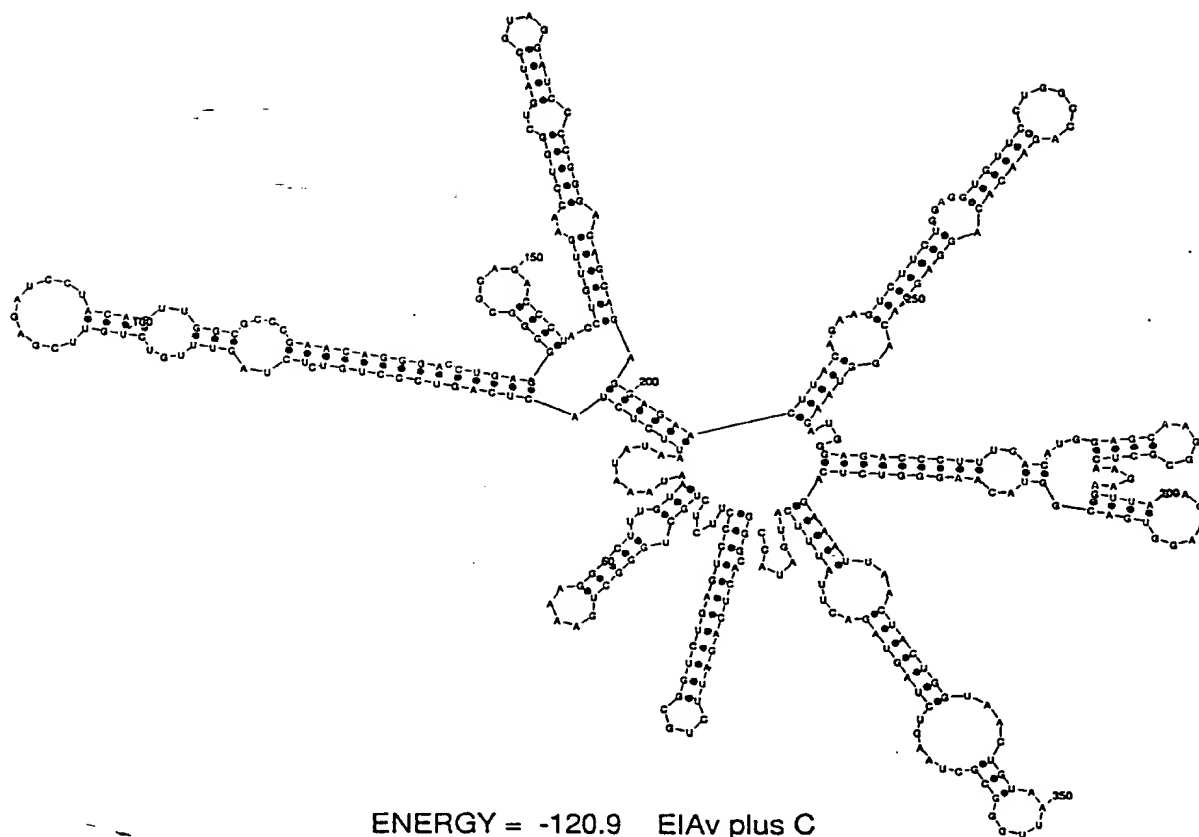


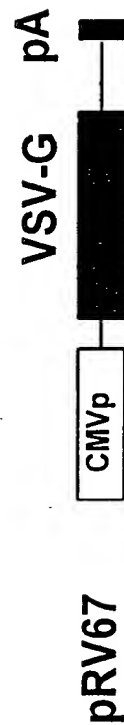
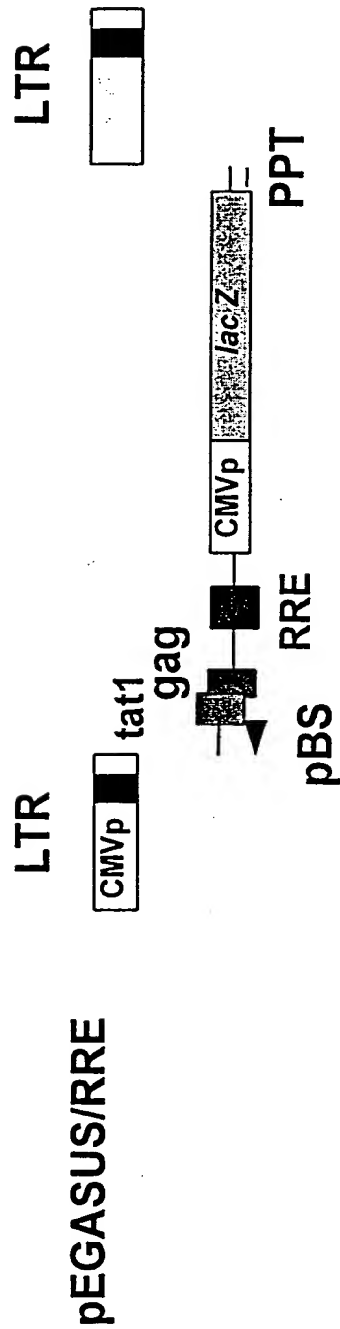
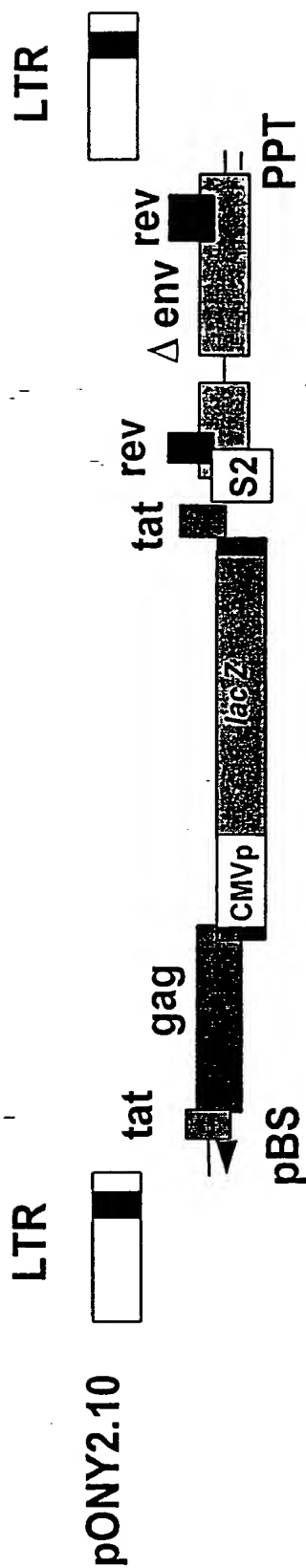
Figure 3





ENERGY = -120.9 EIAv plus C

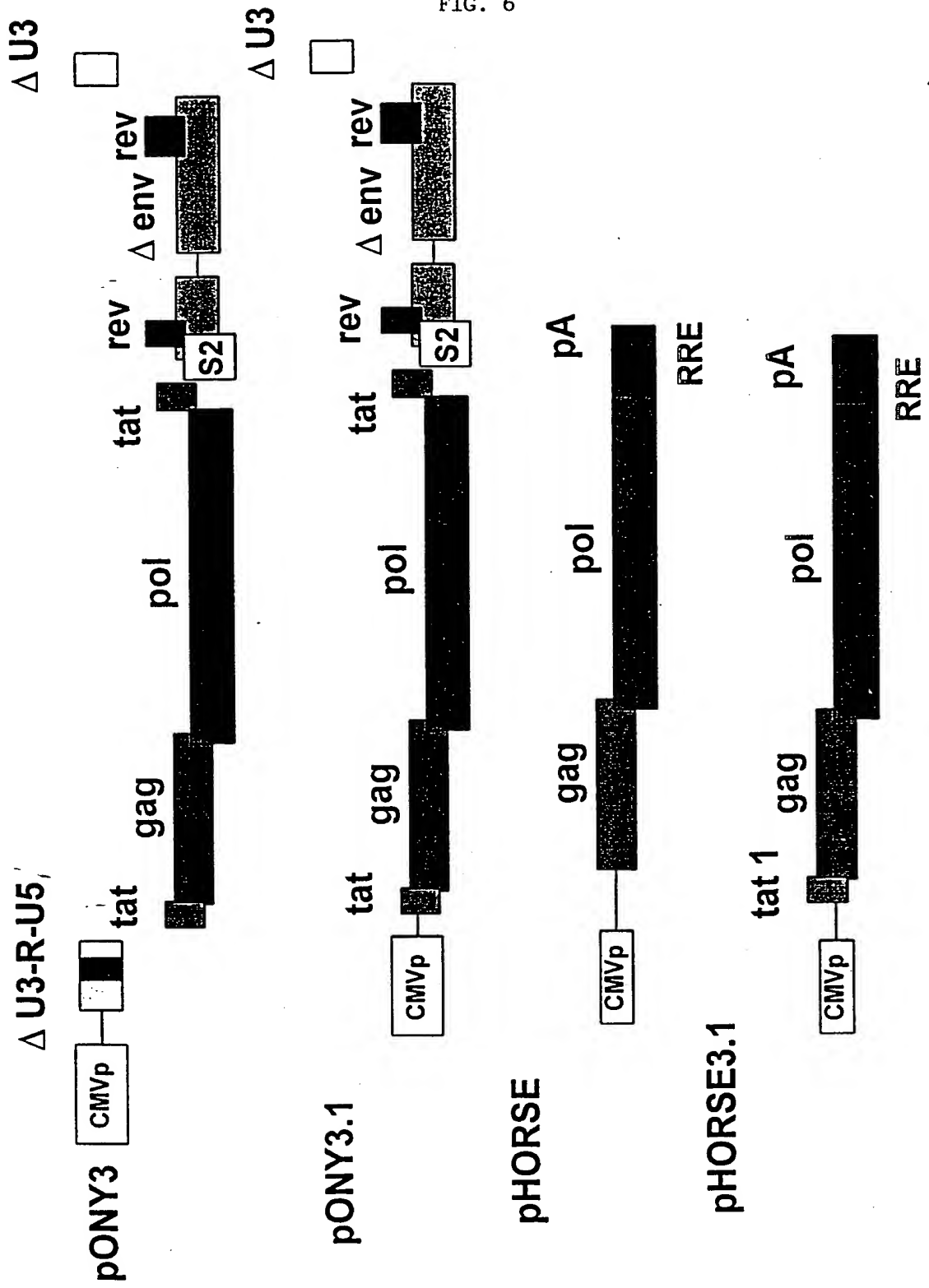
# EIAV Vector Genomes



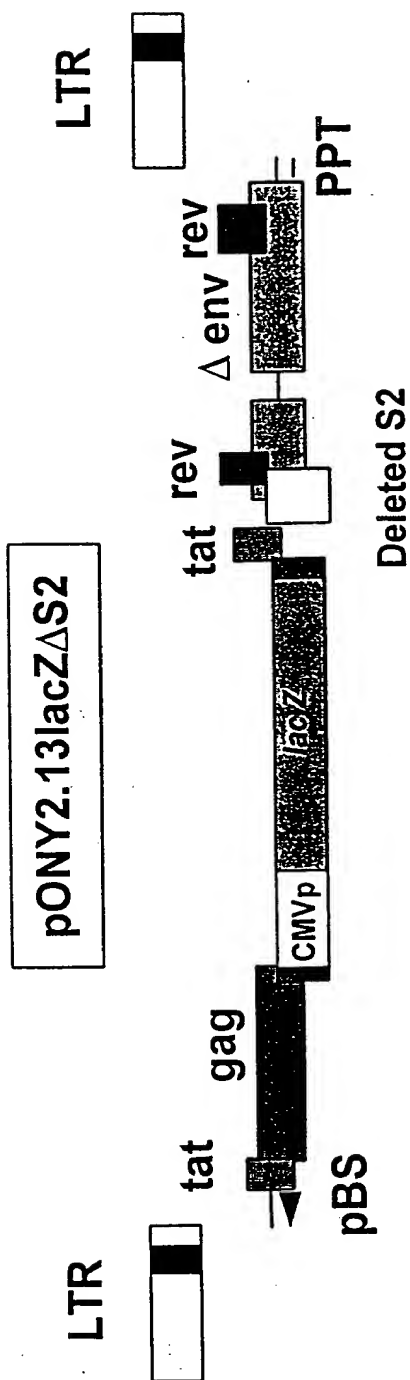
5/43

FIG. 5

# EIAV gagpol Constructs



## FIG. 7



# EIAV gagpol S2 and dUTPase Mutants

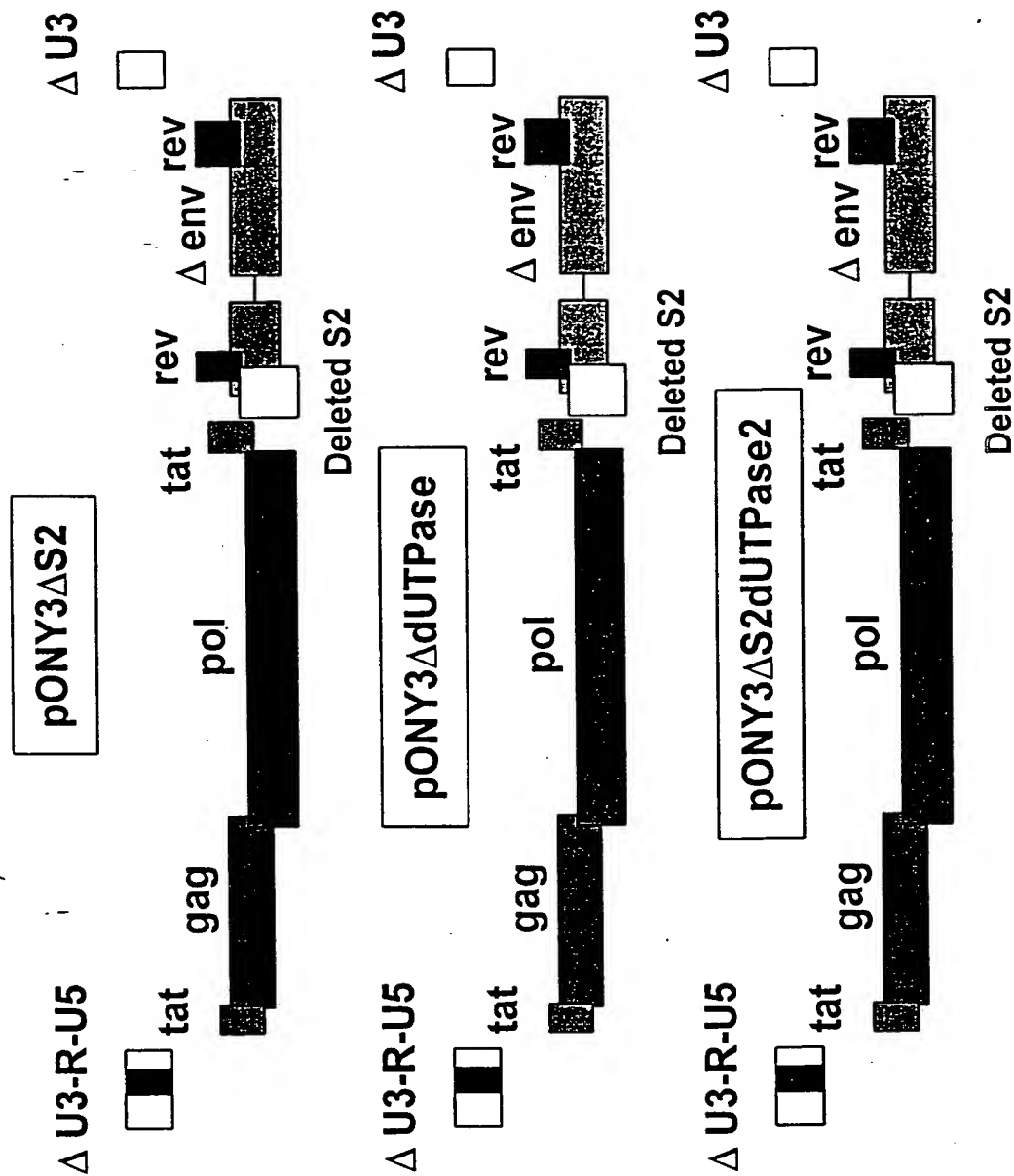


FIG. 8



# ELAV Minimal System

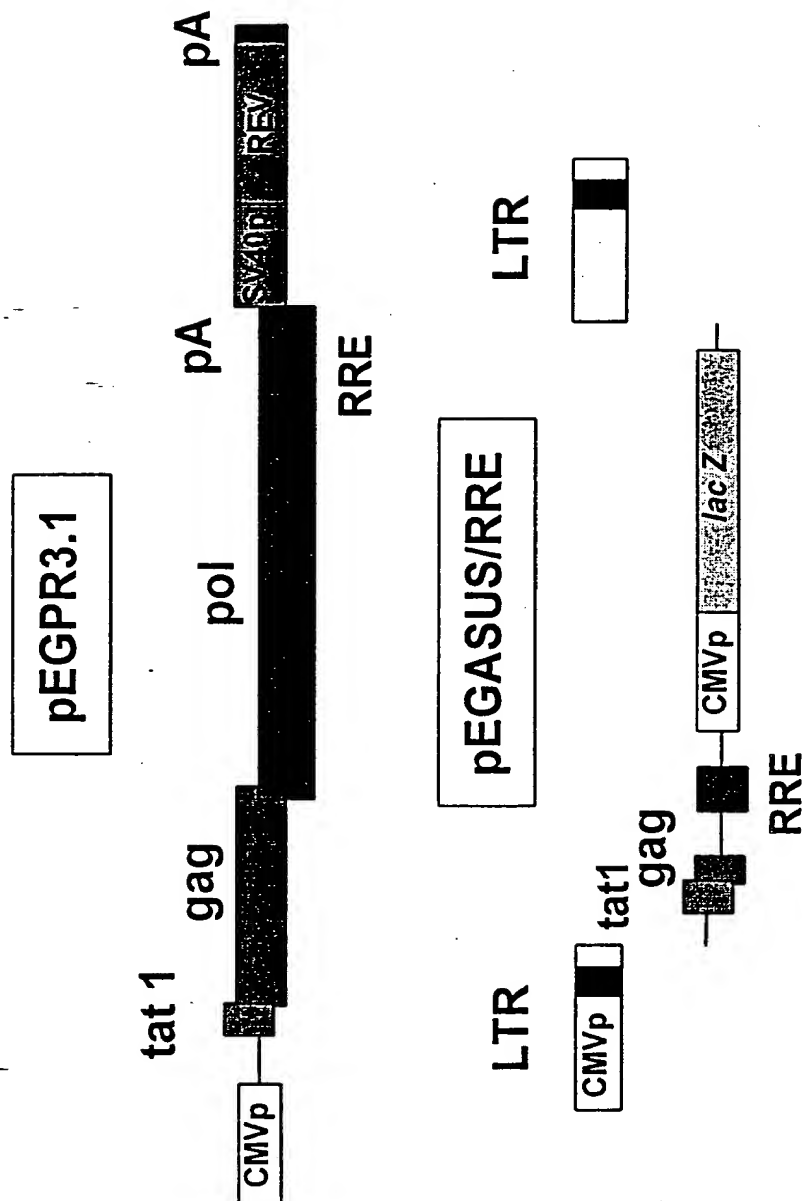
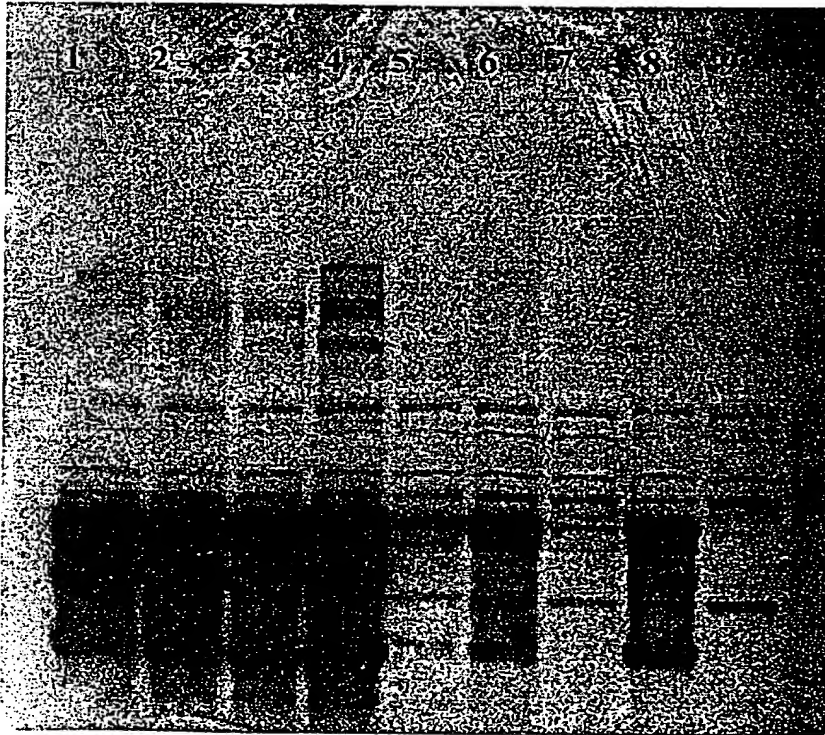


FIG. 9

FIG. 10



Titres  
(i.f.u./ml)

1. pONY3.0 + pCI-Neo	$(1.0 \times 10^5)$
2. pONY3.0 + pCI-Rev	$(8.0 \times 10^4)$
3. pONY3.1 + pCI-Neo	$(2.0 \times 10^5)$
4. pONY3.1 + pCI-Rev	$(1.8 \times 10^5)$
5. pHORSE + pCI-Neo	$(1.0 \times 10^1)$
6. pHORSE + pCI-Rev	$(2.0 \times 10^3)$
7. pHORSE3.1 + pCI-Neo	$(2.0 \times 10^2)$
8. pHORSE3.1 + pCI-Rev	$(8.0 \times 10^4)$
9. pCI-Neo	$(<1.0)$

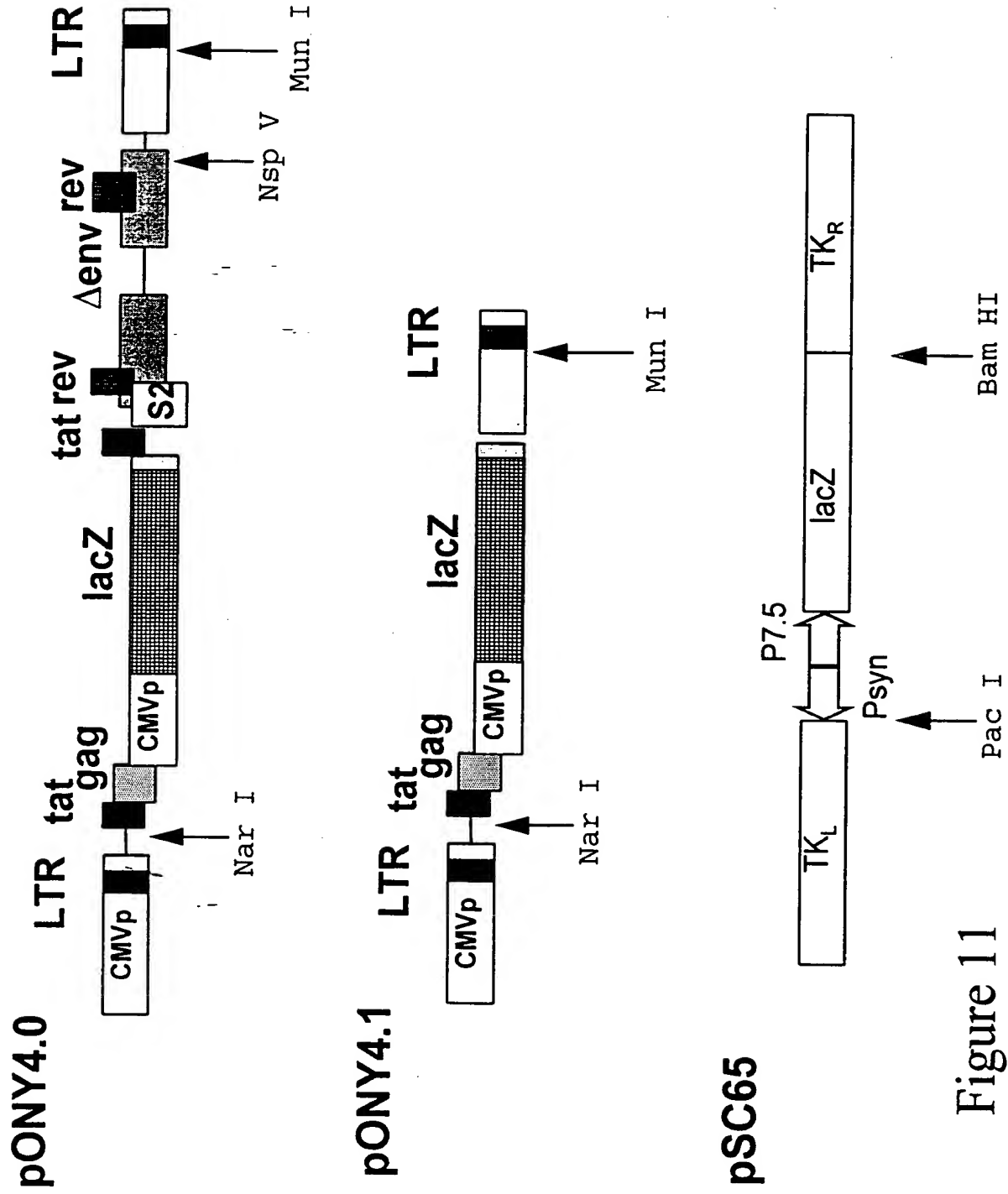


Figure 11

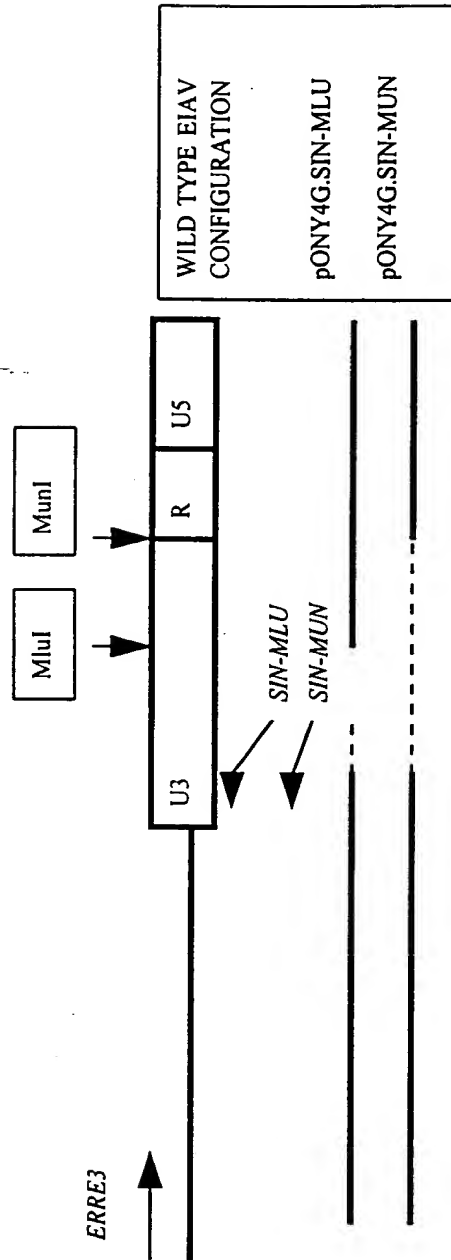
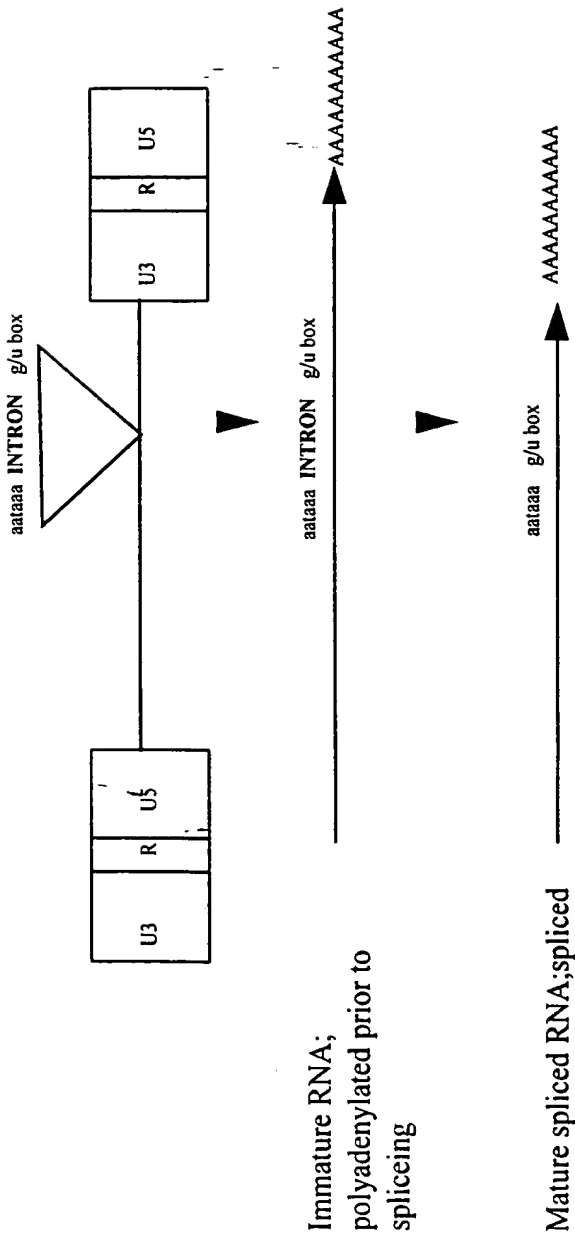


Figure 12

Figure 13

# PROCUDER CELL



# TRANSDUCED CELL

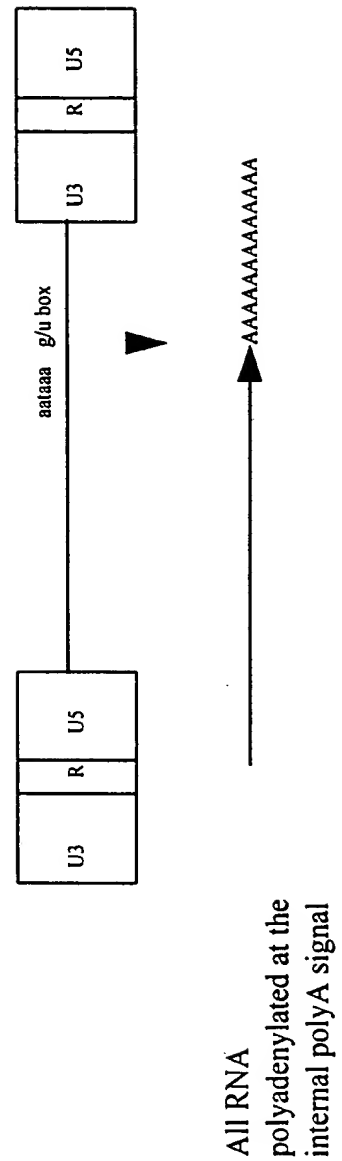
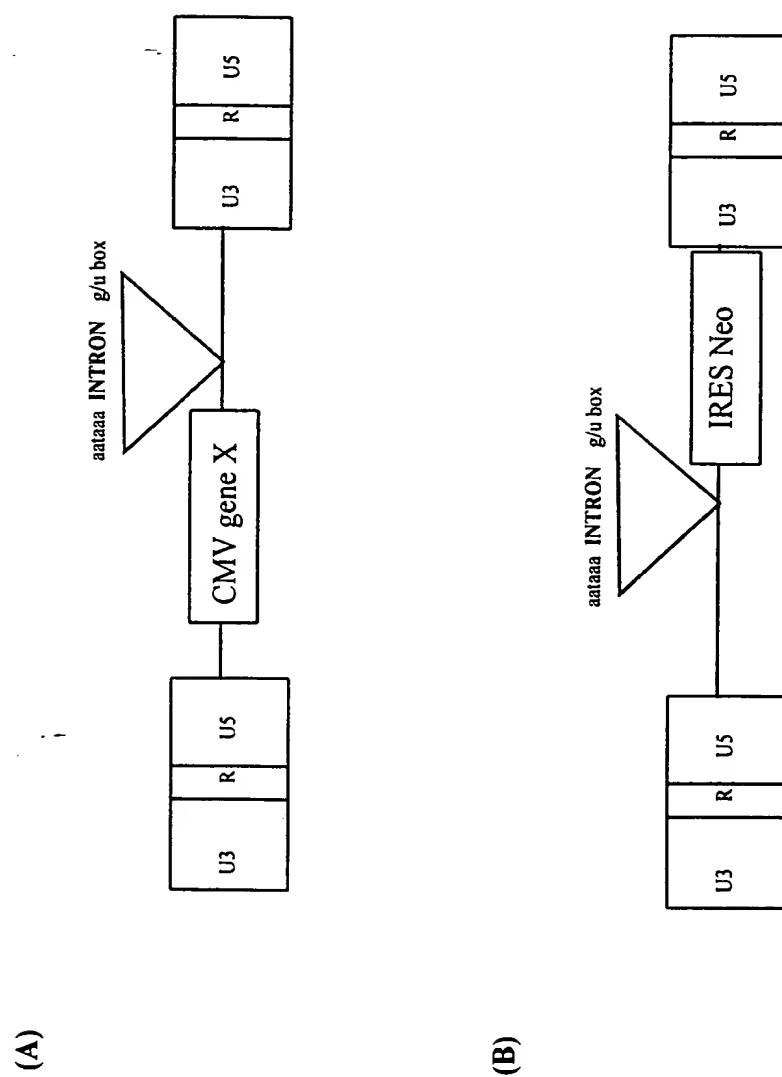
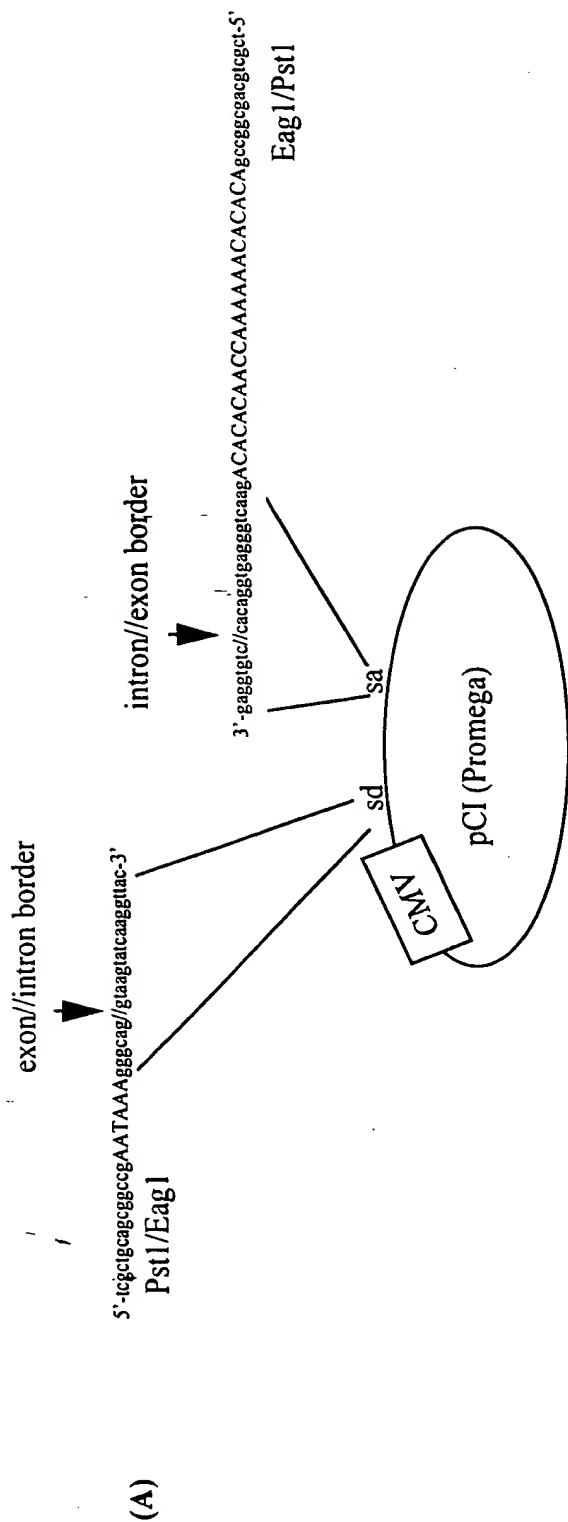


Figure 14





(B) AATAAGggcag//gtaag-----INTRON-----ctccacag//gtgccactccaggttcTGTGTGTTGGTTTTTGTGTGT

(C) AATAAGggcaggtgccactccaggttcTGTGTGTTGGTTTTTGTGTGT

aataaa 23 base pair space g/u box

Figure 15

Figure 16

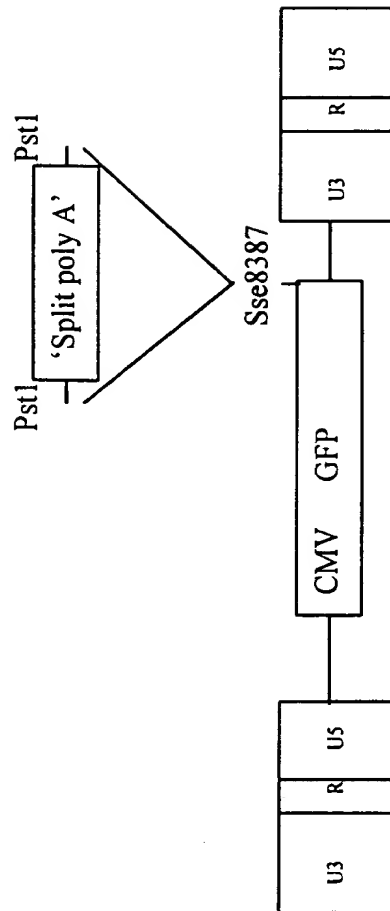




Figure 17

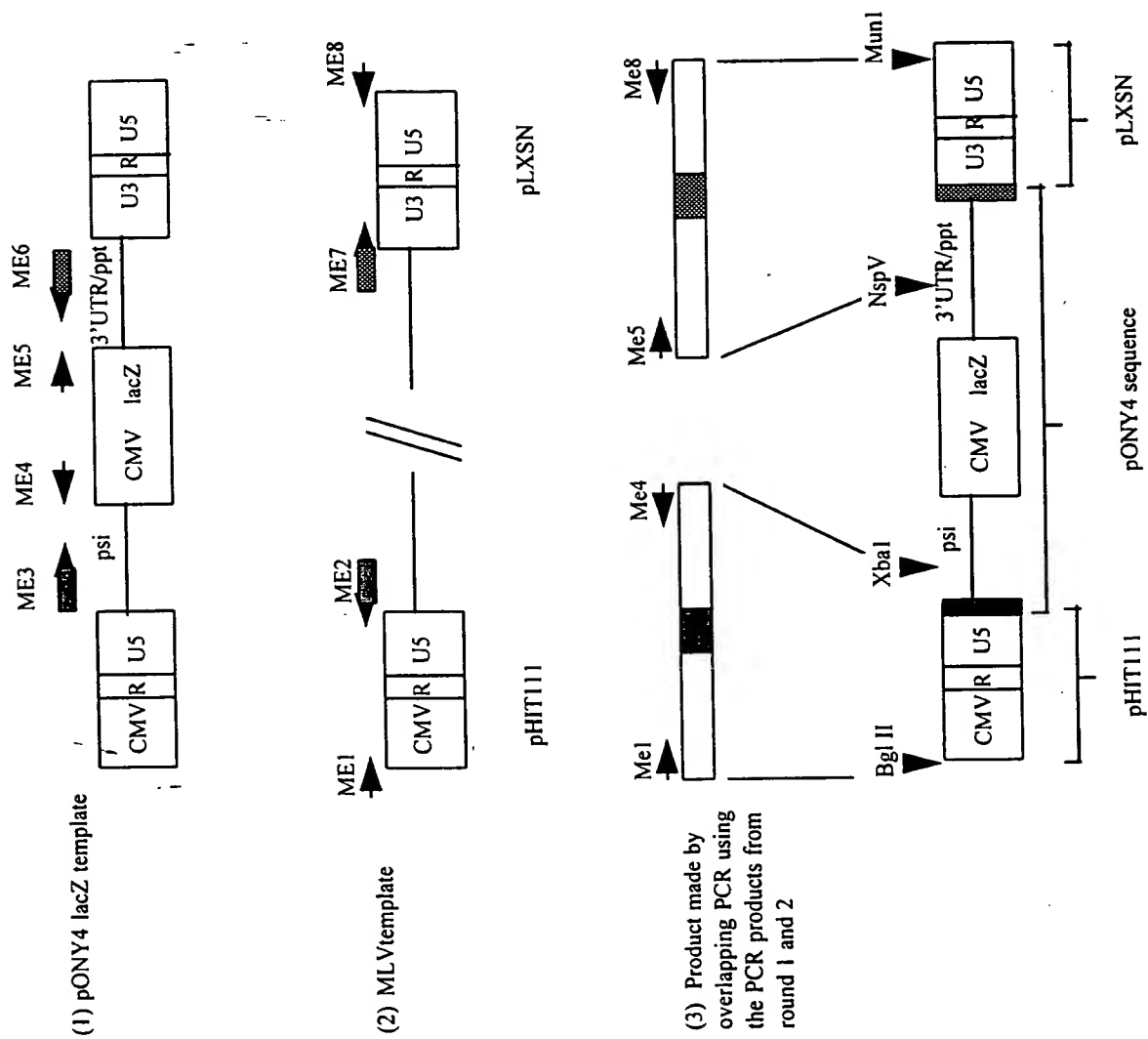


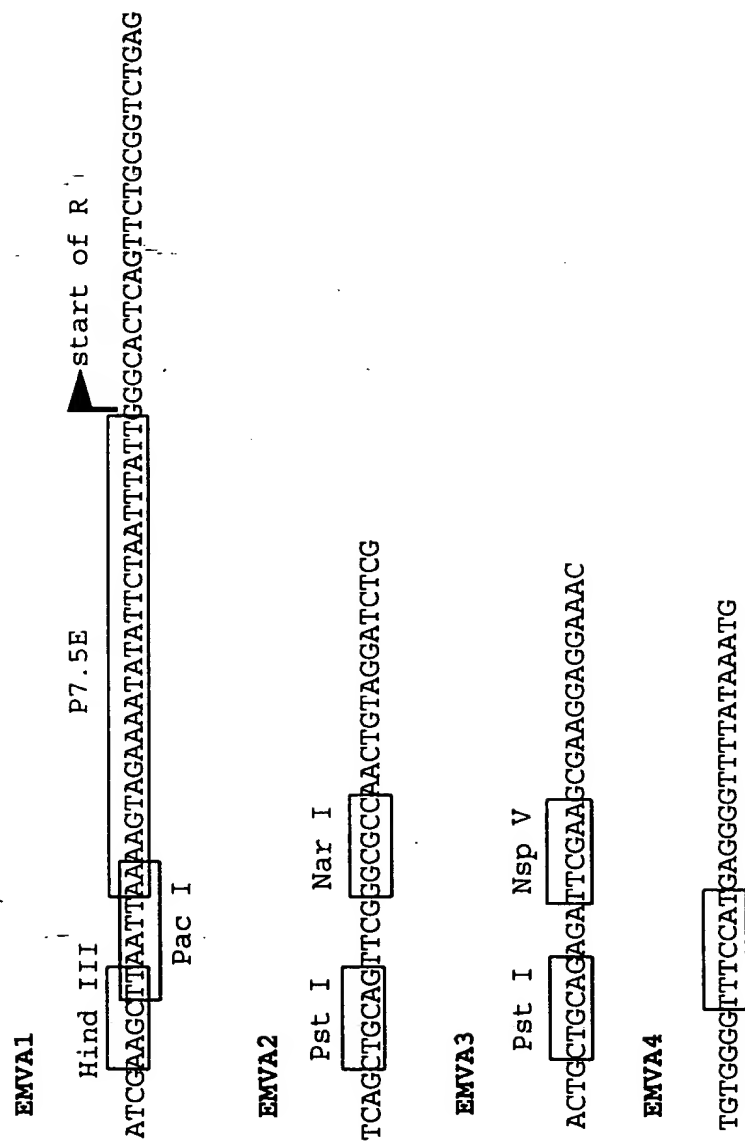
Figure 18

Me1 5'-tcgatagatctgagtcggttacataacttacgg-3'  
Me2 5'-gatctcgaacagacaactagagacaggaggactgcaaacagcaaggcctttattggg-3'  
Me3 5'-gtccctgtctctagttgtctgttcgagat-3'  
Me4 5'-ggggatccactagttcttagagatat-3'  
Me5 5'-ccttagacctggagattcgaagcgaag-3'  
Me6 5'-ccaaacctacagtggtggtcttcttattacaagggtatgagagcatcagcaac-3'  
Me7 5'-aatgaaagacccccaccctgtagggttg-3'  
Me8 5'-gtagagtgcccaattgccagtatacacctccgctatcgctac-3'

Figure 19

Figure 19 cont.

Figure 20



The boxed sequence is the mutated TTTTAT sequence within U3.

Figure 21

EMVA5

CCCTC[ATGGAAT]CCCCACAGTCCCCCCTTG

The boxed sequence is the mutated TTTTAT sequence within U3.

EMVA6

Bgl II                      Mun I  
CTGAAGATCT[GAATCTGAGTGCCCAATTG]TCAG

EMVA7

Mun I  
CTGACAAATTG[GGCACTCAGATTC

EMVA8

Bgl II  
CATGAGATCTT[AAAAAAAAA]TGATGAGAGAATTATTTATTAC

The AAAAAAAAAA sequence contains the termination signal (TTTTNT) for the early promoter.

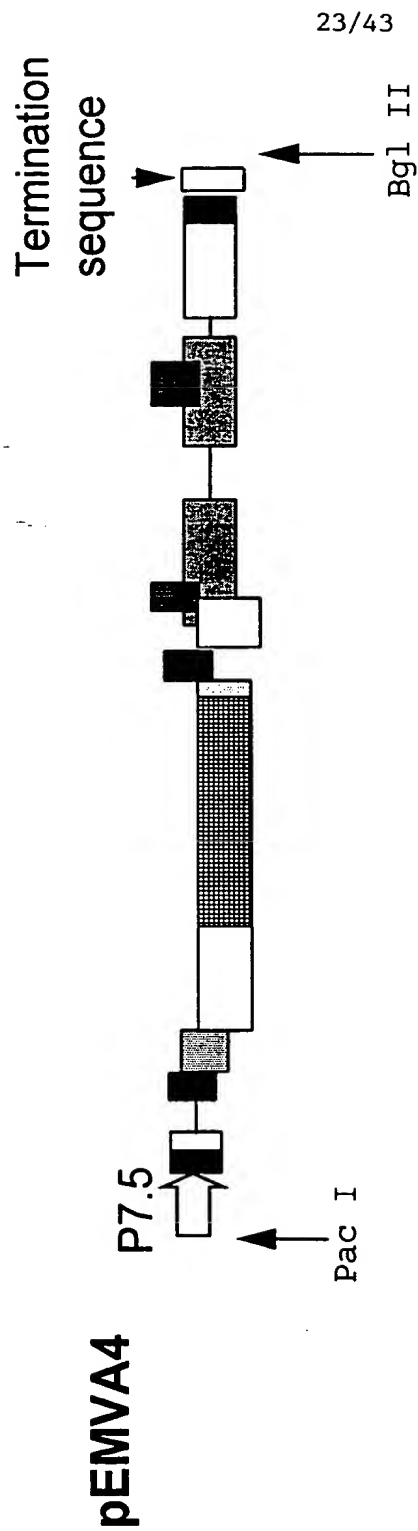
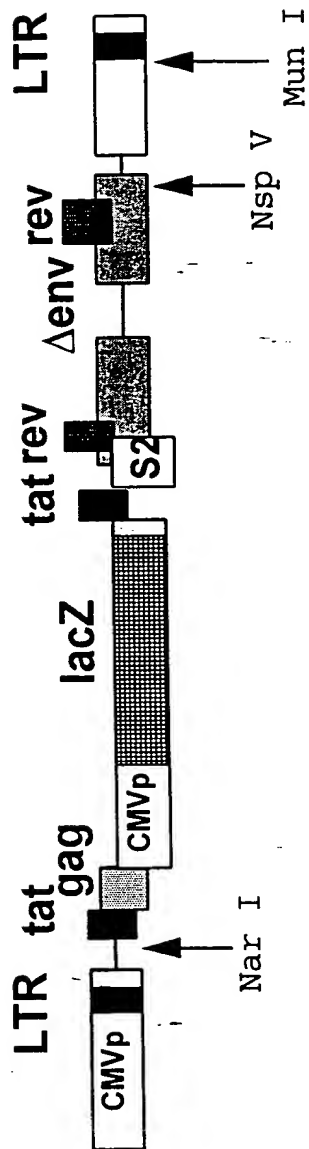


Figure 22

# pONY4.0



# pEMVA4

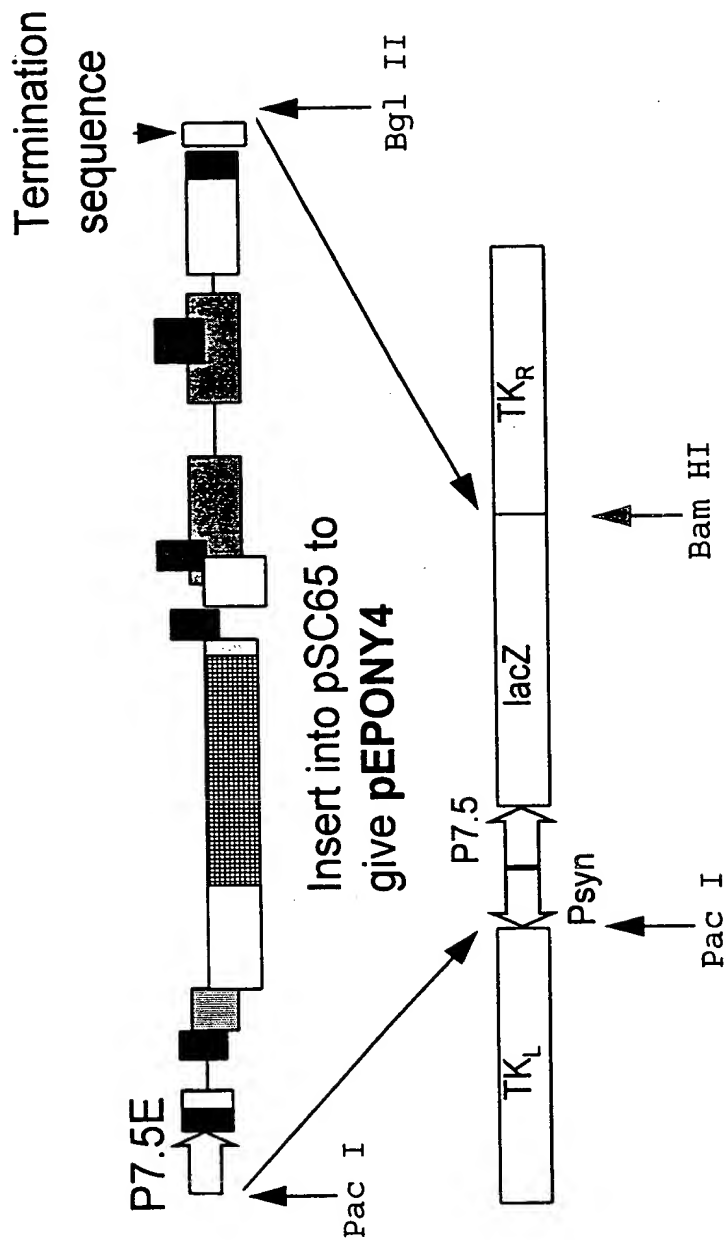


Figure 23



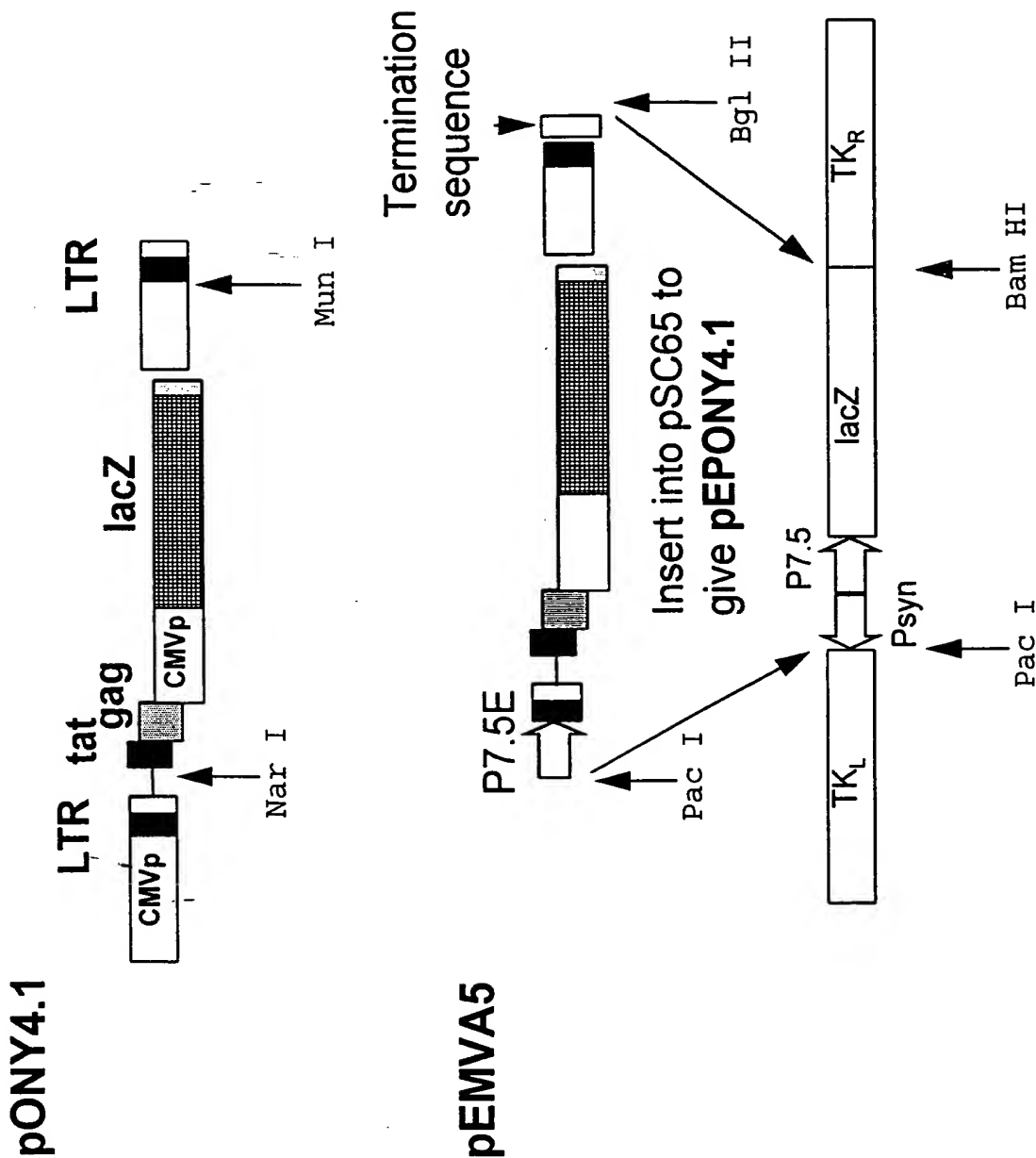


Figure 24

EMVA9

Pac I                      Psyn

AGCTTAATTAATAAAATGAAATTTTATTTTTTTTTTTTGGGAATATAAATAAGCTCGAAGT

CTGAGTGCCCTGATGAGCGGCCGAAAGGCCCGCGAAACCTGCGTCGACACGCAGGTC

GGGCACTCAGATTCTGCGGTC

▶ start of R after cleavage by the hammerhead ribozyme.

The ribozyme sequence is undelined.

Figure 25

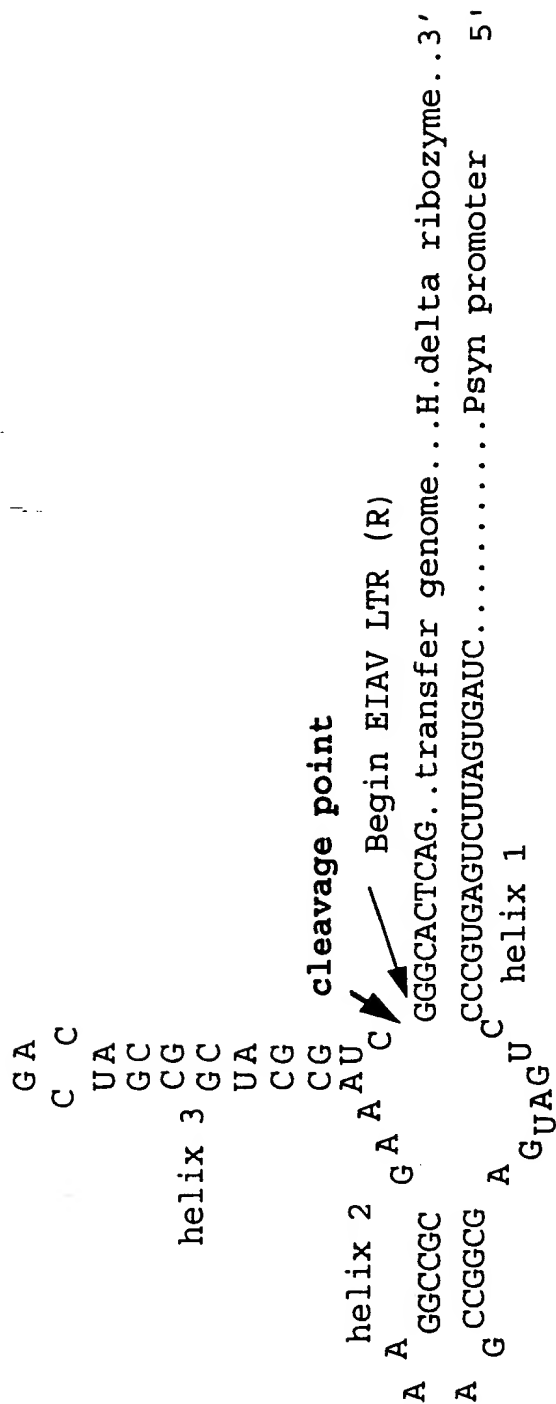


Figure 26

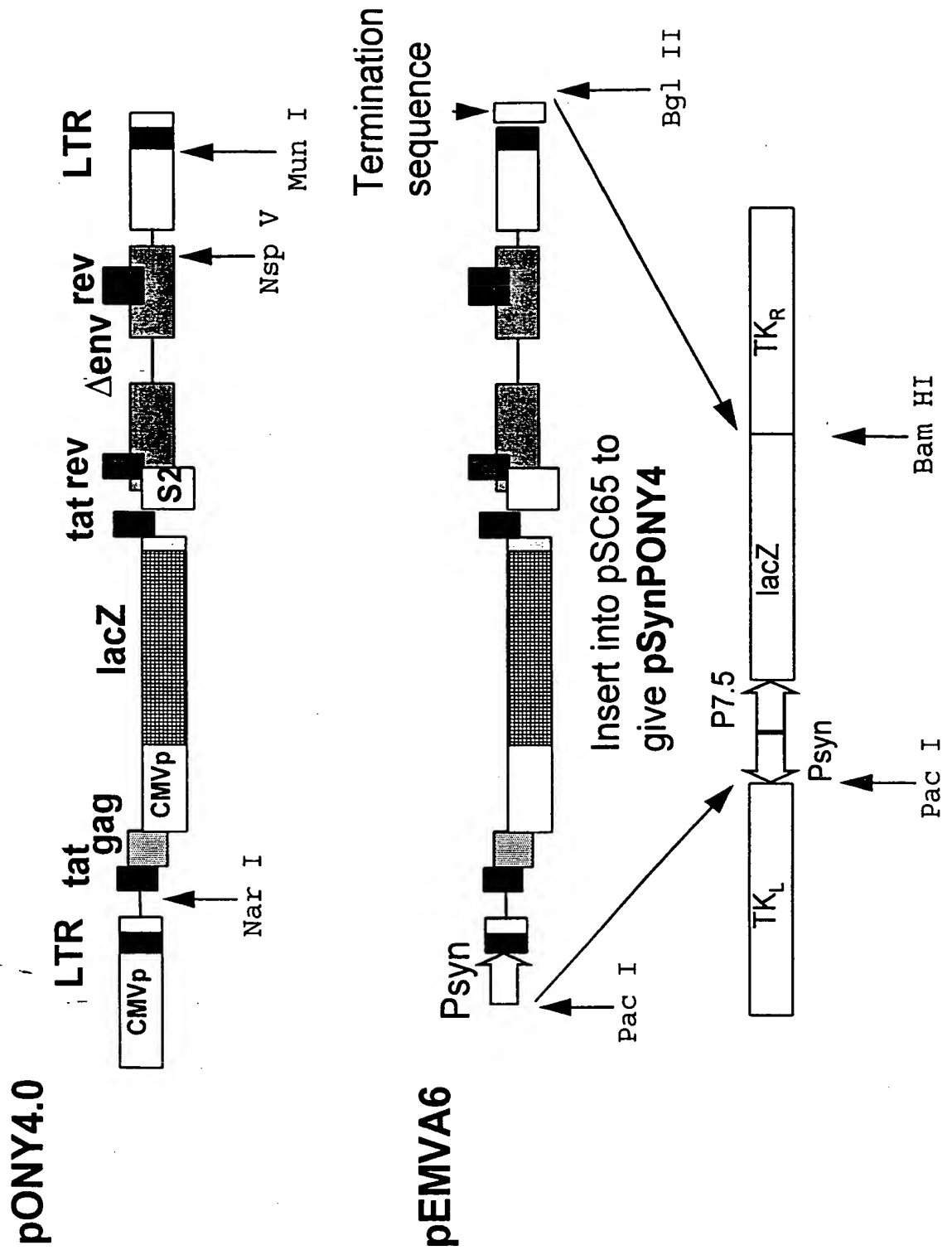


Figure 27

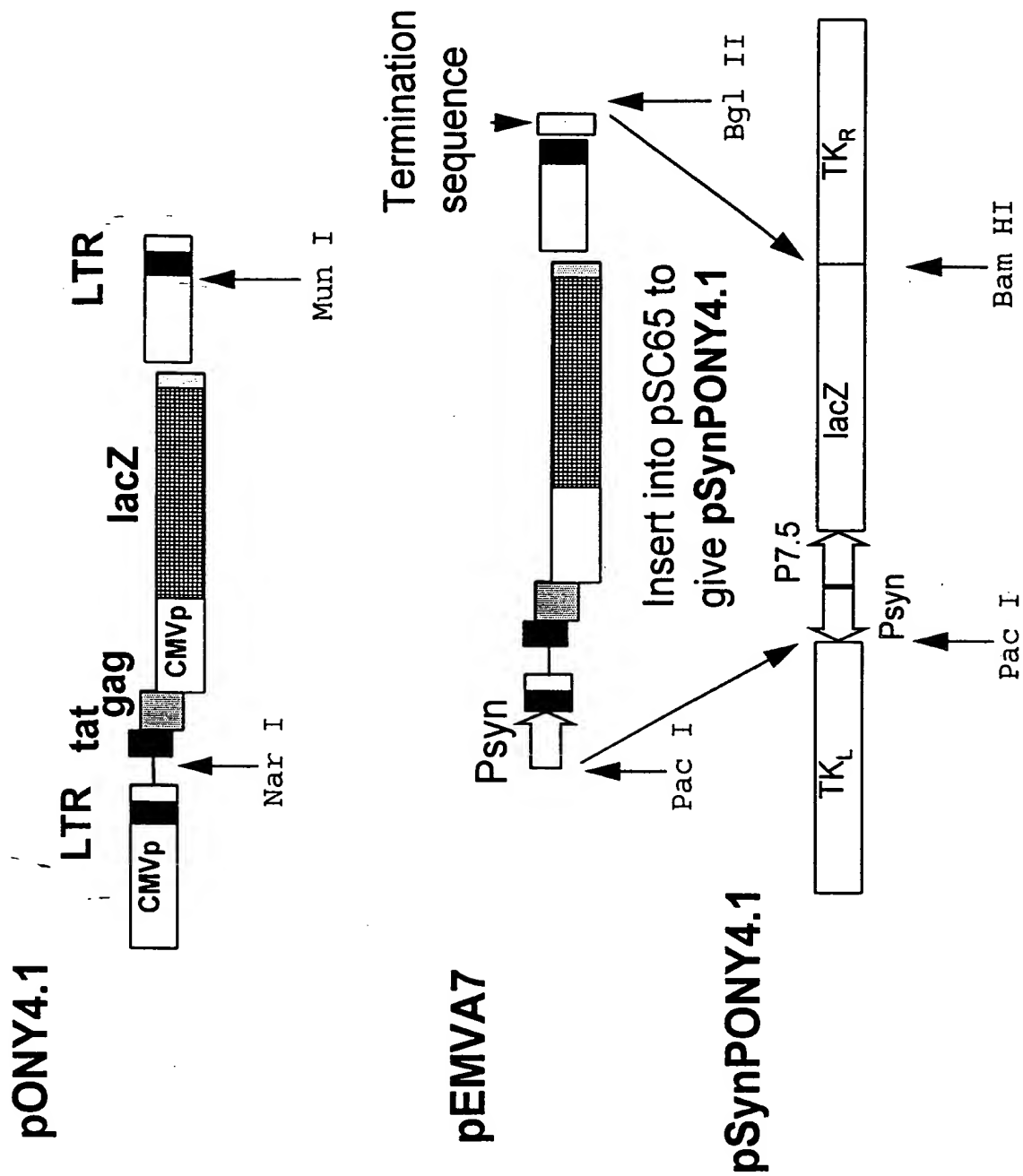


Figure 28

**EMVA10**

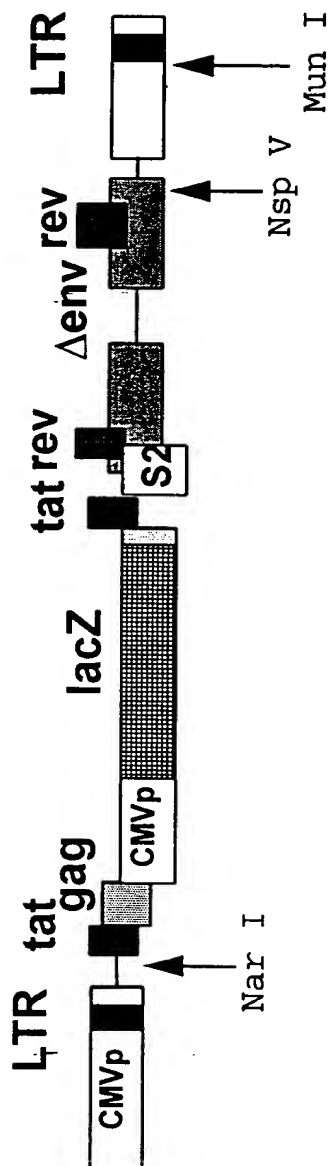
Pac I      T7 promoter      start of R  
ATCGTTAATTAAATAACGACTCACTATAGGGCACTCAGATTCTGCGGTC

**EMVA11**

Bgl II      T7 termination sequence  
CATGAGATCTCAAAAACCCCTCAAGACCCGTTTAGAGGCCCAAGGGTTATGCTAGTATGAGAGAATTATATTATTAC

Figure 29

# pONY4.0



# pEMVA9

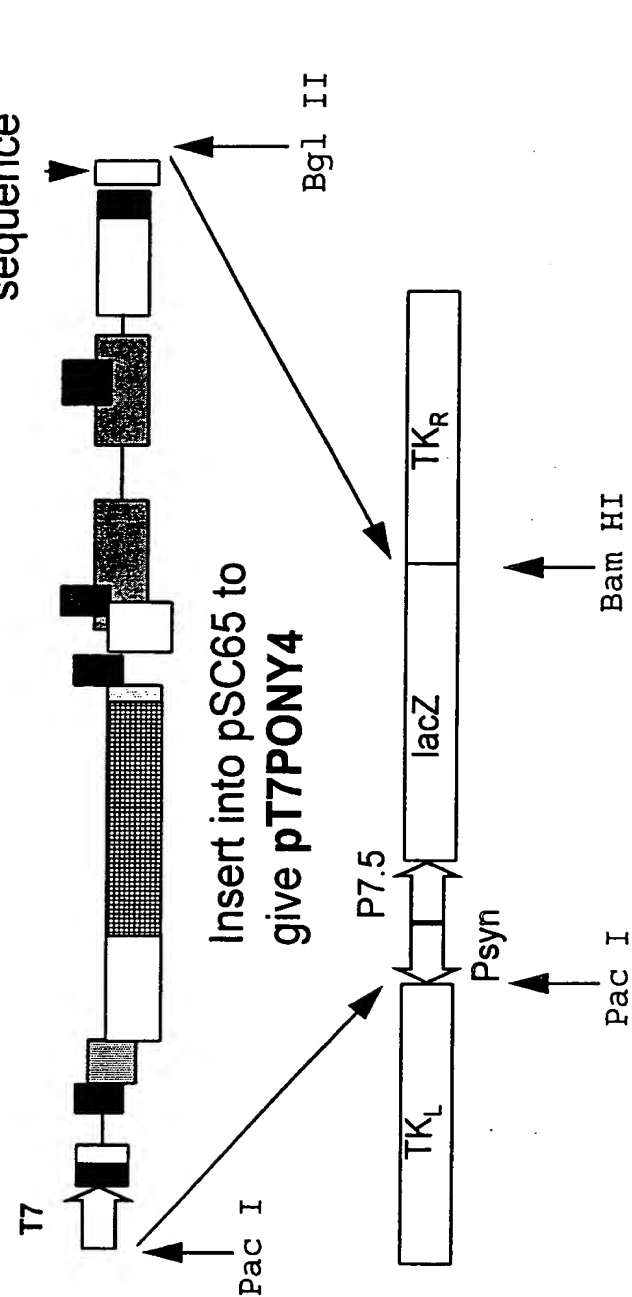


Figure 30

Figure 31

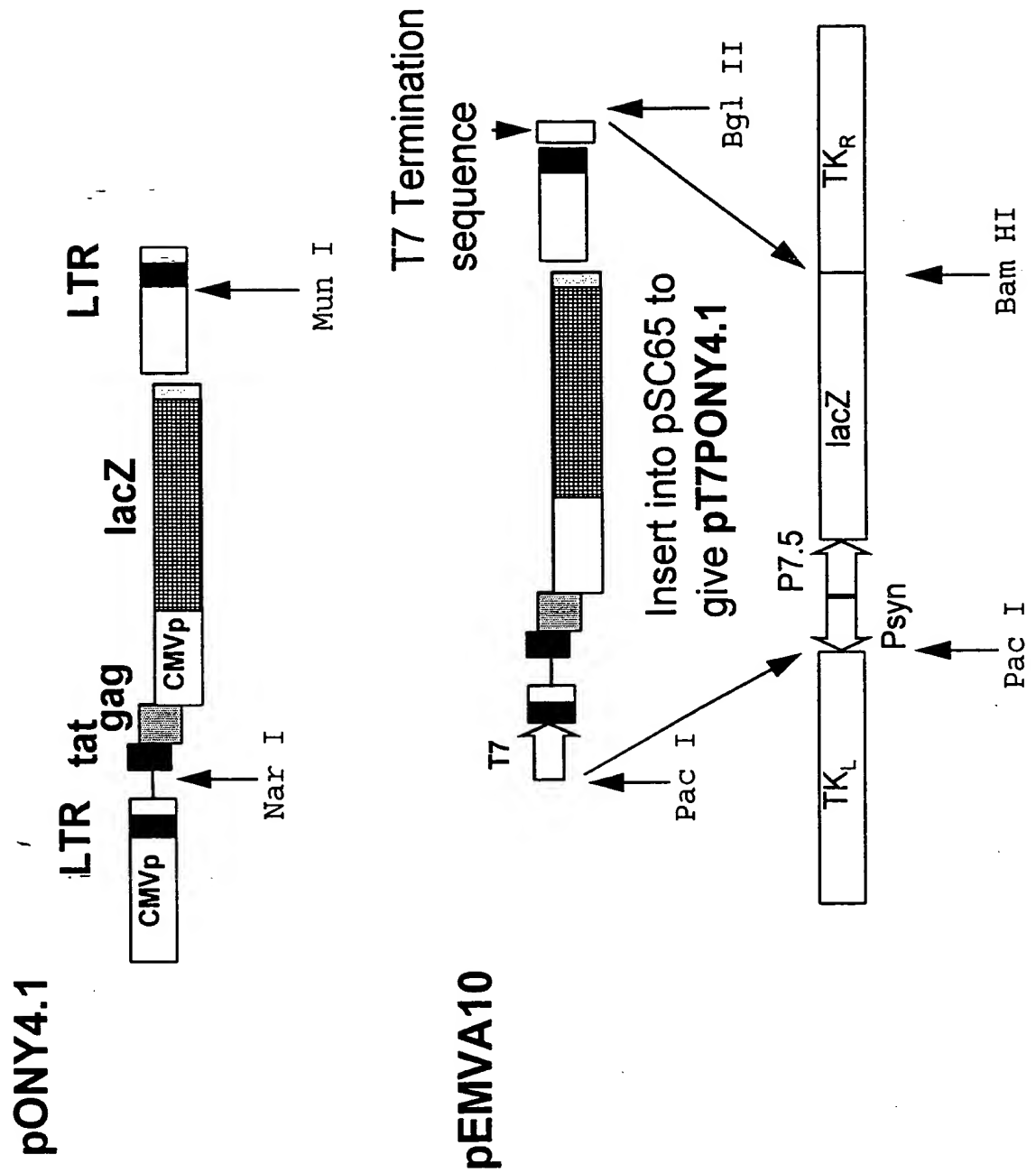




Figure 32

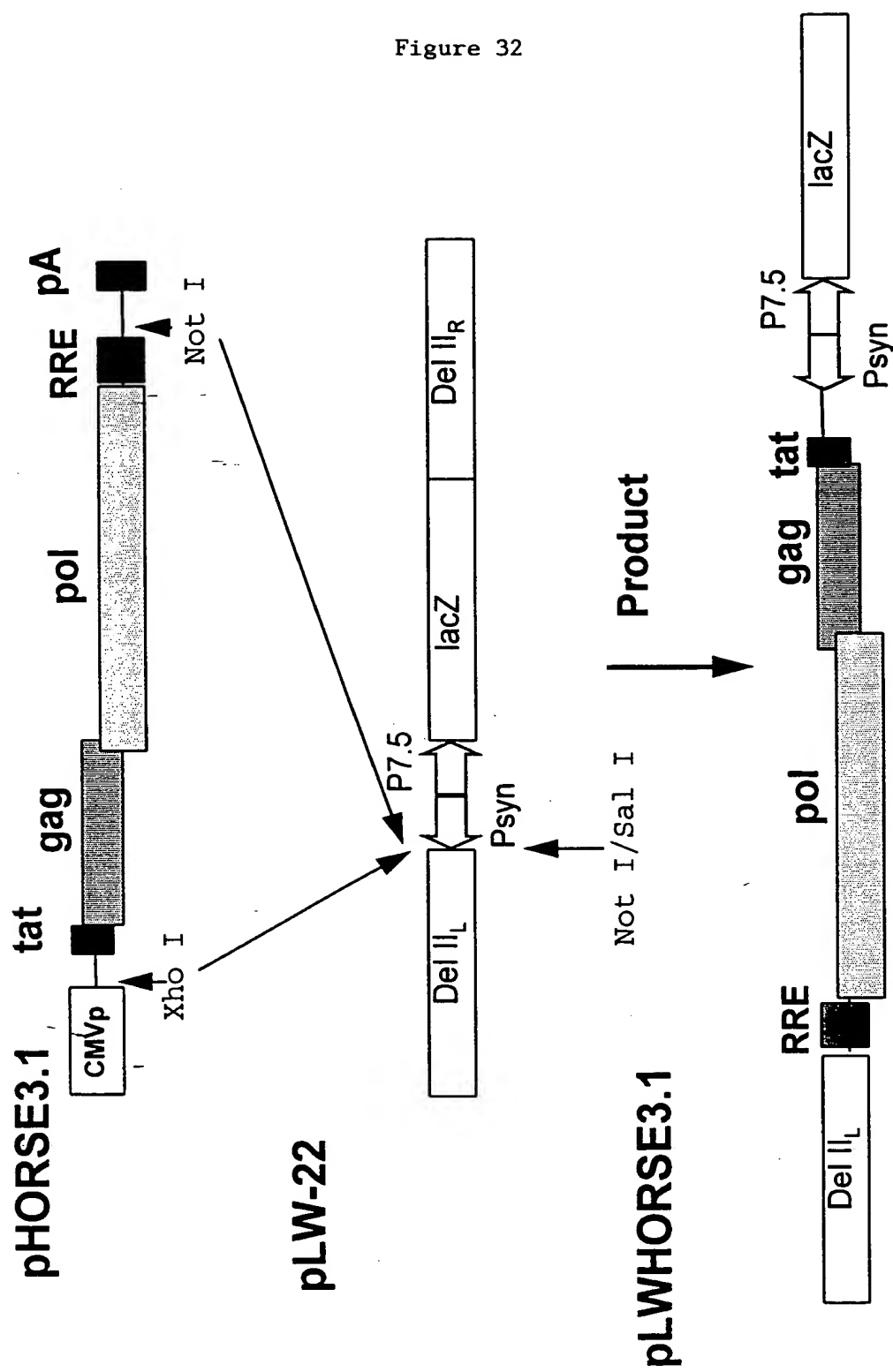


Figure 33

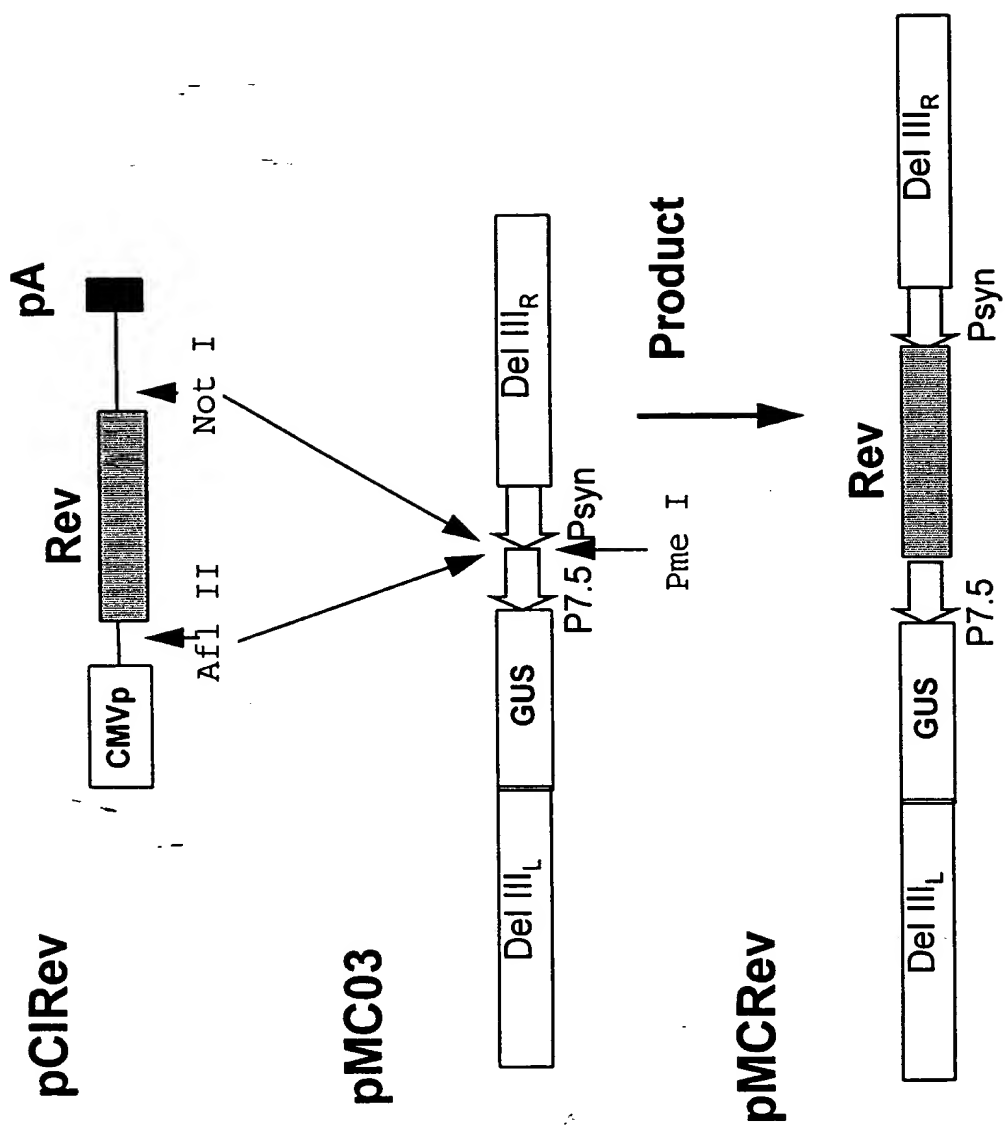


Figure 34

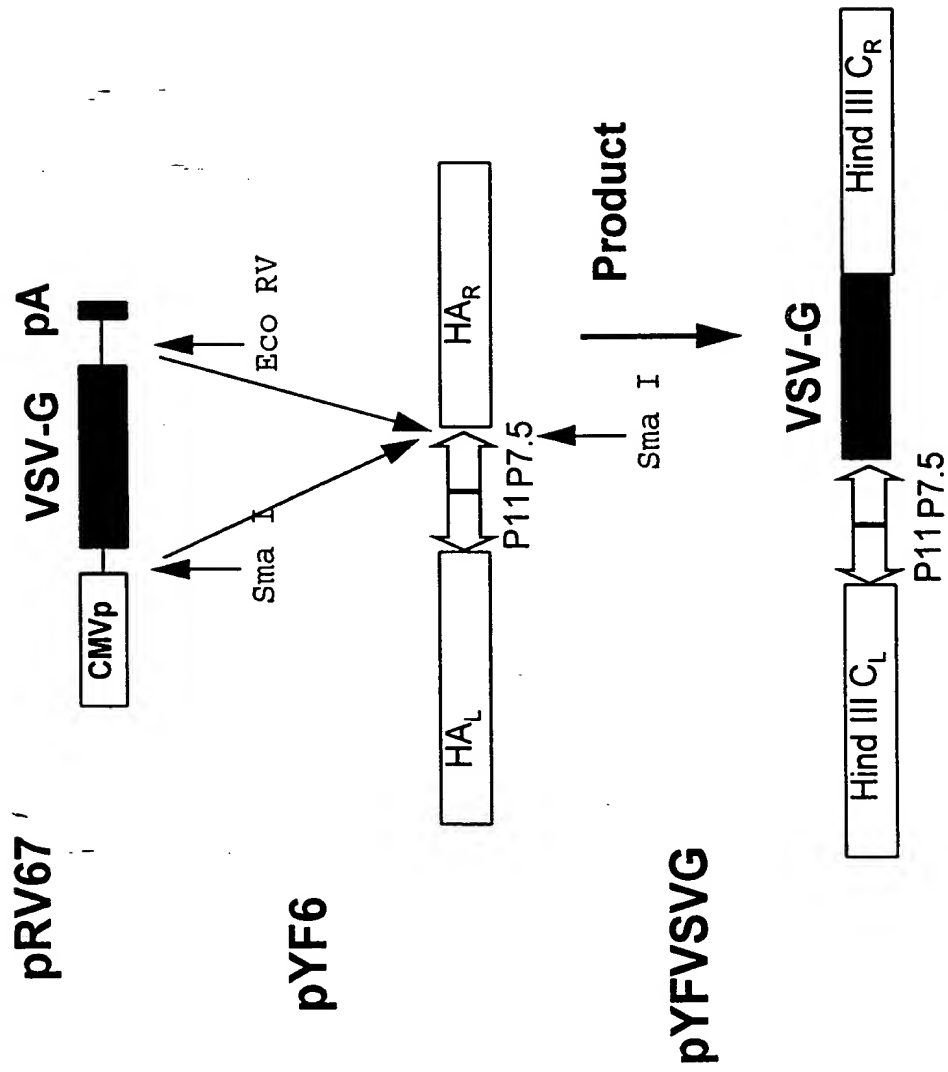
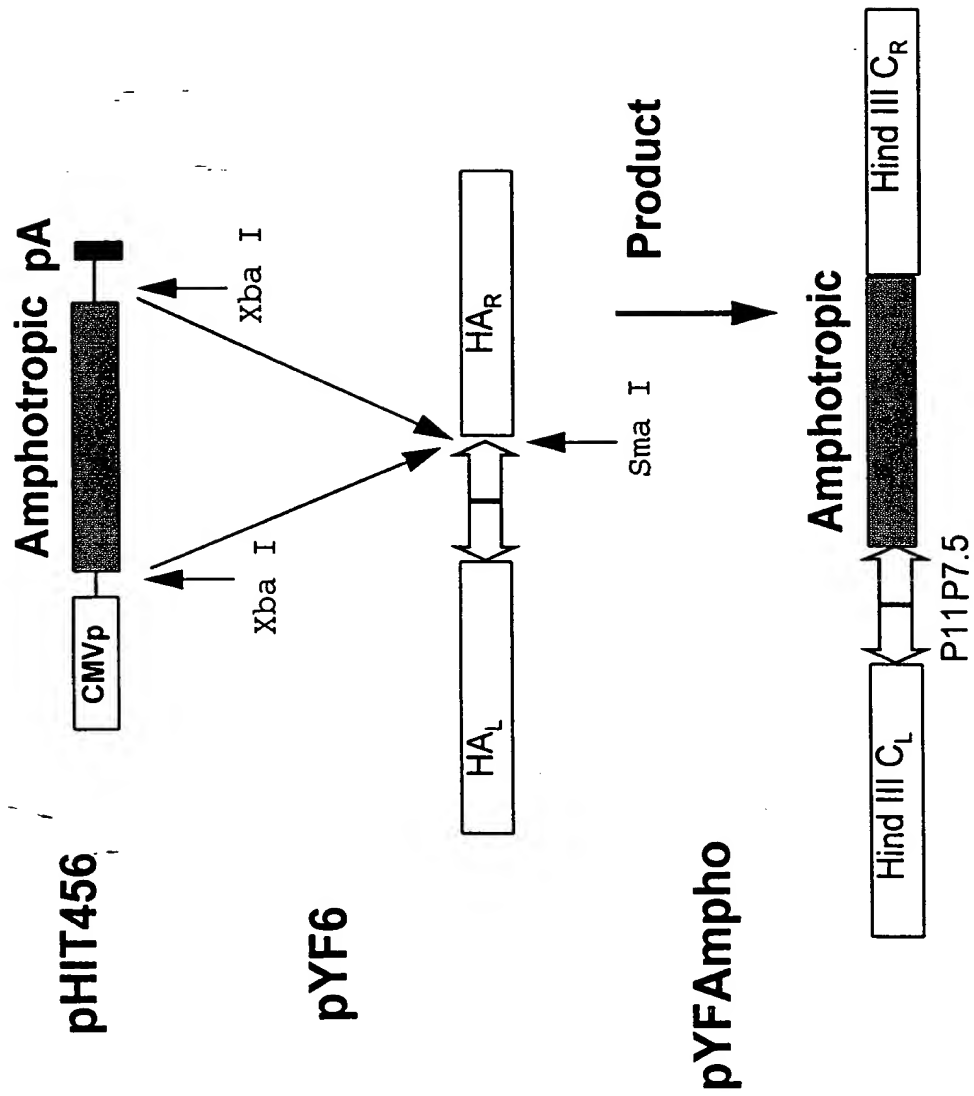


Figure 35



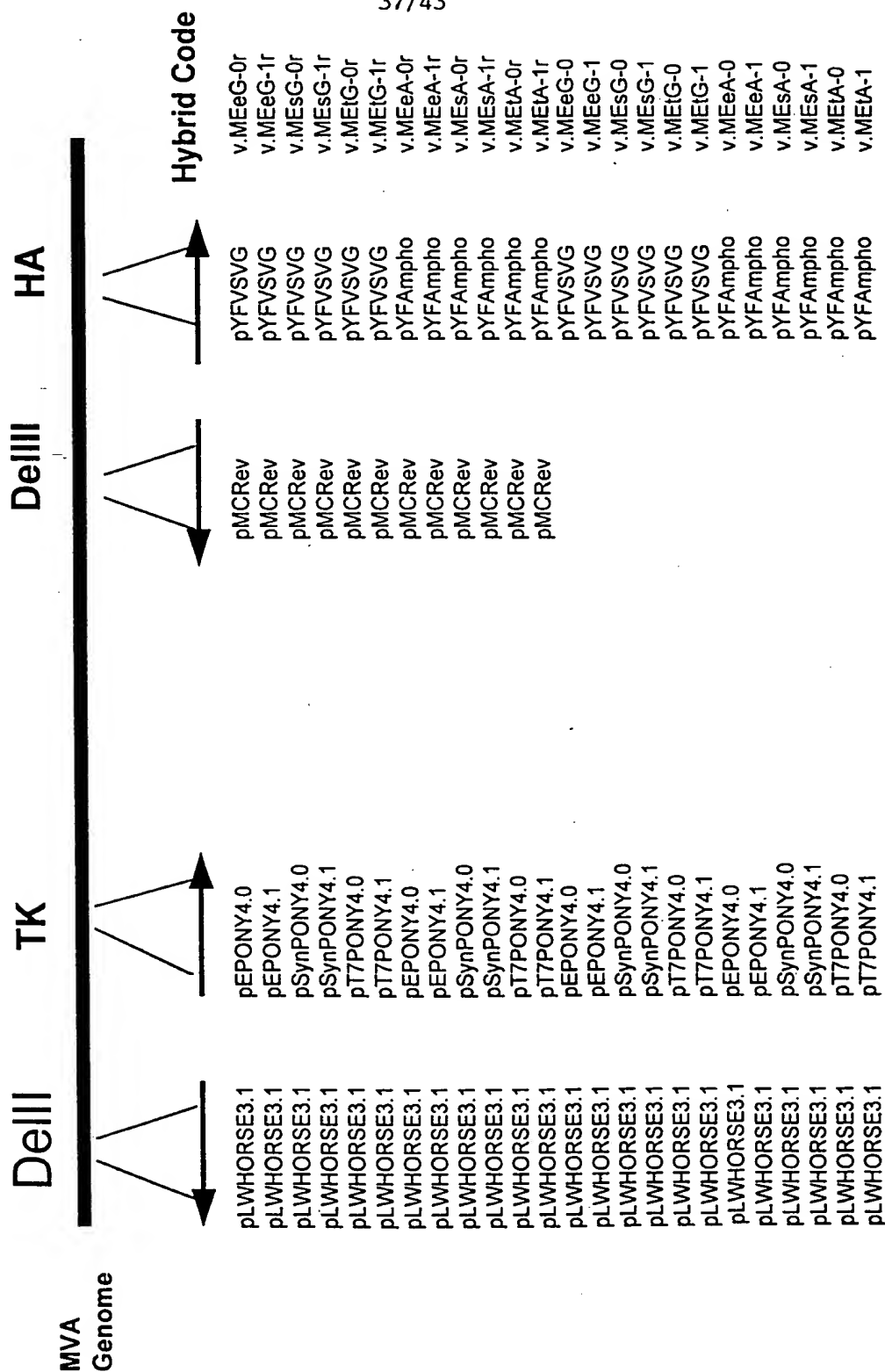


Figure 36

FIGURE 37

1/3

AGCTTTTTCGCGATCAATAAATGGATCACAACCAGTATCTCTTAACGATGTTCTTCGCAGATGATGAT  
 TCATTTTTTAAAGTATTTGGCTAGTCAAGATGATGAAATCTTCATTATCTGATATATTGCAAATCAC  
 TCAATATCTAGACTTTCTGTTATTATTATTGATCCAATCAAAAAATAAATTAGAAGCCGTGGGTCA  
 TTGTTATGAATCTCTTTCAGAGGAATACAGACAATTGACAAAATTCACAGACTTTCAAGATTTTAA  
 AAACTGTTTAAACAAGGTCCCTATTGTTACAGATGGAAGGGTCAAACCTTAATAAAGGATATTTGTT  
 CGACTTTGTGATTAGTTTGATGCGATTCAAAAAAGAATCCTCTCTAGCTACCACCGCAATAGATCC  
 TGTTAGATACATAGATCCTCGTCGCAATATCGCATTTTCTAACGTGATGGATATATTAAAGTCGAA  
 TAAAGTGAACAATAATTAATTCTTTATTGTCAATGAACGGCGGACATATTCAGTTGATAATCGG  
 CCCCATGTTTTCAGGTAAAAGTACAGAATTAATTAGACGAGTTAGACGTTATCAAATAGCTCAATA  
 TAAATGCGTGACTATAAAATATTCTAACGATAATAGATACGGAACGGGACTATGGACGCATGATAA  
 GAATAATTTTGAAGCATTGGAAGCACTAACTATGTGATCTCTTGGAATCAATTACAGATTTCTC  
 CGTGATAGGTATCGATGAAGGACAGTTCTTTCAGACATTGTTGAATTAGATCGATAAAAAATTAAT  
 TAATTACCCGGGTACCAGGCCTAGATCTGTGACTTCGAGCTTATTTATATTCCAAAAAATTTTAC  
 TAAAATTTCAATTTTAAAGCTTTCACTAATTCCAAACCCACCCGCTTTTATAGTAAGTTTTTCAC  
 CCATAAATAATAAATACAATAATTAATTTCTCGTAAAAGTAGAAAAATATATTCTAATTTATTGCAC  
 GGTAAGGAAGTAGATCATAACTCGAGCATGGGAGATCCCGTCGTTTACAACGTCGTGACTGGGAA  
 AACCTTGGCGTTACCCAACCTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGC  
 GAAGAGGCCCGCACCAGTCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCC  
 TGGTTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGCGATCTTCTGAGGCCGATACT  
 GTCGTGTCCTCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTAACCTAT  
 CCCATTACGGTCAATCCGCCGTTTGTTCACGAGAAATCCGACGGGTGTTACTCGCTCACATTT  
 AATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTGTGATGGCGTTAACTCGGCG  
 TTTTCATCTGTGGTGCAACGGGCGTGGGTGCGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTT  
 GACCTGAGCGCATTTTTACGCGCCGAGAAAACCGCCTCGCGGTGATGGTGCTGCGTTGGAGTGAC  
 GGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTG  
 CATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTACGCCGC  
 GCTGTACTGGAGGCTGAAGTTTCAATGATGTGCGCGAGTTGCGTGACTACCTACGGGTAACAGTTTCT  
 TTATGGCAGGGTGAAACGCAGGTGCGCCAGCGGCACCGCGCCTTTCGGCGGTGAAATTATCGATGAG  
 CGTGGTGTTTATGCCGATCGCGTCACACTACGTCTCAACGTGCAAAAACCCGAACTGTGGAGCGCC  
 GAAATCCCGAATCTCTATCGTGCGGTGGTTGAACTGCACACCGCCGACGGCACGCTGATTGAAGCA  
 GAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGTAACGGCAAG  
 CCGTTGCTGATTTCGAGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTCATGGATGAG  
 CAGACGATGGTGAGGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTTTCGCAT  
 TATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCC  
 AATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCG  
 ATGAGCGAACGCGTAACGCGAATGGTGACGCGGATCGTAATCACCCGAGTGTGATCATCTGGTCG  
 CTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGAT  
 CCTTCCCGCCCCGGTGCAGTATGAAGCGGGCGAGCCGACACCGGCCACCGATATTATTGCCCCG  
 ATGTACGCGCGCGTGGATGAAGACCGCCCTTCCCGGCTGTGCGGAAATGGTCCATCAAAAAATGG  
 CTTTTCGCTACCTGGAGAGACGCGCCCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAAACAGT  
 CTTGGCGGTTTTCGCTAAATACTGGCAGGCGTTTCGTGAGTATCCCCGTTTACAGGGCGGCTTCGTC  
 TGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTTGGTGGGCTTACGGC  
 GGTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGC  
 ACGCCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGG

Figure 37 cont. 2/3

CAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATG  
GTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTGCTCCACAAGGTAAA  
CAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGC  
GTAGTGCAACCGAACCGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGT  
CTGGCGGAAAACCTCAGTGTGACGCTCCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGC  
GAAATGGATTTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTT  
TCACAGATGTGGATTGGCGATAAAAAACAACTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGCA  
CCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTGACCCTAACGCCTGGGTGCAACGC  
TGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGCT  
GATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGG  
AAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGAT  
ACACCGCATCCGGCGCGGATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAACTGG  
CTCGGATTAGGGCCGCAAGAAAACCTATCCCGACCGCCTTACTGCCGCCTGTTTGGACCGCTGGGAT  
CTGCCATTGTAAGACATGTATACCCCGTACGCTCTCCCGAGCGAAAACGGTCTGCGCTGCGGGACG  
CGGAATTGAATTATGGCCACACAGTGGCGCGGCACTTCCAGTTCAACATCAGCCGCTACAGT  
CAACAGCAACTGATGGAACCCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAAT  
ATCGACGGTTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTC  
AGCTGAGCGCCGGTTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATAACCGGGCAGGG  
GGGATCCTTCTGTGAGCGTATGGCAAACGAAGGAAAAATAGTTATAGTAGCCGCACTCGATGGGAC  
ATTTCAACGTAAACCGTTTAATAATATTTTGAATCTTATTCCATTATCTGAAATGGTGGTAAACT  
AACTGCTGTGTGTATGAAATGCTTTAAGGAGGCTTCCTTTTCTAAACGATTGGGTGAGGAAACCGA  
GATAGAAATAATAGGAGGTAATGATATGTATCAATCGGTGTGTAGAAAGTGTACATCGACTCATA  
ATATTATATTTTTTATCTAAAAAACTAAAAATAAACATTGATTAAATTTTAATATAACTTAAAA  
ATGGATGTTGTGTGCTTAGATAAACCGTTTATGTATTTGAGGAAATTGATAATGAGTTAGATTAC  
GAACCAGAAAGTGCAATGAGGTGCAAAAAAACTGCCGTATCAAGGACAGTTAAACTATTACTA  
GGAGAATTATTTTTTCTAGTAAGTTACAGCGACACGGTATATTAGATGGTGCCACCGTAGTGTAT  
ATAGGATCTGCTCCCGGTACACATATACGTTATTTGAGAGATCATTTCTATAATTTAGGAGTGATC  
ATCAAATGGATGCTAATTGACGGCCGCCATCATGATCCTATTTTAAATGGATTGCGTGATGTGACT  
CTAGTGACTCGGTTTCGTTGATGAGGAATATCTACGATCCATCAAAAAACAACCTGCATCCTTCTAAG  
ATTATTTTAATTTCTGATGTGAGATCCAAACGAGGAGGAAATGAACCTAGTACGGCGGATTTACTA  
AGTAATTACGCTCTACAAAATGTCATGATTAGTATTTTAAACCCCGTGGCGTCTAGTCTTAAATGG  
AGATGCCCGTTTCCAGATCAATGGATCAAGGACTTTTATATCCACACGGTAATAAAATGTTACAA  
CCTTTTGCTCCTTCATATTCAGCTGAAATGAGATTATTAAGTATTTATACCGGTGAGAACATGAGA  
CTGACTCGGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAT  
CGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGA  
AGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTCTCCCT  
TCGGGAAGCGTGGCGCTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCGC  
TCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTAT  
CGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATT  
AGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACT  
AGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGC  
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GAAAACCTCACGTTAAGGGATTTTGGTTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTA  
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TGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATAGTTGCCTGACTC  
CCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCG  
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TCGTCGTTTGGTATGGCTTCATTTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCC  
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ACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTC  
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CGAATAAATACCTGTGACGGAAGATCACTTCGCAGAATAAATAAATCCTGGTGTCCCTGTTGATAC  
CGGGAAGCCCTGGGCCAACTTTTGGCGAAAATGAGACGTTGATCGGCACGTAAGAGGTTCCAACTT  
TCACCATAATGAAATAAGATCACTACCGGGCGTATTTTTTGTAGTTATCGAGATTTTCAGGAGCTAA  
GGAAGCTAAAATGGAGAAAAAATCACTGGATATACCACCGTTGATATATCCCAATGGCATCGTAA  
AGAACATTTTGAGGCATTTTCAGTCAGTTGCTCAATGTACCTATAACCAGACCGTTCAG

Figure 37 cont. 3/3



Figure 38 1/3

CCTCCTGAAAACTGGAATTTAATACACCATTTGTGTTTCATCATCAGACATGATATTACTGGATTT  
 ATATTGTTTATGGGTAAGGTAGAATCTCCTTAATATGGGTACGGTGTAAAGGAATCATTATTTTATT  
 TATATTGATGGGTACGTGAAATCTGAATTTTCTTAATAAATATTATTTTATTAAATGTGTATATG  
 TTGTTTTGCGATAGCCATGTATCTACTAATCAGATCTATTAGAGATATTATTAATTCTGGTGCAAT  
 ATGACAAAAATTATACACTAATTAGCGTCTCGTTTCAGACATGGATCTGTACGAATTAATACTTG  
 GAAGTCTAAGCAGCTGAAAAGCTTTCTCTCTAGCAAAGATGCATTTAAGGCGGATGTCCATGGACA  
 TAGTGCCTTGTATTATGCAATAGCTGATAATAACGTGCGTCTAGTATGTACGTTGTTGAACGCTGG  
 AGCATTGAAAAATCTTCTAGAGAATGAATTTCCATTACATCAGGCAGCCACATTGGAAGATACCAA  
 AATAGTAAAGATTTTGGCTATTTCAGTGGACTGGATGATTTCGAGGTACCCGATCCCCCTGCCCGGT  
 TATTATTATTTTGGACACCAGACCAACTGGTAATGGTAGCGACCGGCGCTCAGCTGAATTCGCCCG  
 AACTGACGGGCTCCAGGAGTCGTGCGCCACCAATCCCATATGGAAACCGTCGATATTACGCCATG  
 TGCCTTCTTCCGCGTGCAGCAGATGGCGATGGCTGGTTTCCATCAGTTGCTGTTGACTGTAGCGGC  
 TGATGTTGAACTGGAAGTCGCCCGGCCACTGGTGTGGGCCATAATTCAATTCGCCGCTCCCGCAGC  
 GCAGACCGTTTTCTCGCTCGGGAAGACGTACGGGGTATACATGTCTGACAATGGCAGATCCCAGCGGT  
 CAAAACAGGCGGCAGTAAGGCGGTTCGGGATAGTTTTCTTGCGGCCCTAATCCGAGCCAGTTTACCC  
 GCTCTGCTACCTGCGCCAGCTGGCAGTTTCAGGCCAATCCGCGCCGGATGCGGTGTATCGCTCGCCA  
 CTTCAACATCAACGGTAATCGCCATTTGACCACTACCATCAATCCGGTAGGTTTTCCGGCTGATAA  
 ATAAGGTTTTCCCTGATGCTGCCACGCGTGAGCGGTCTGAATCAGCACCGCATCAGCAAGTGTAT  
 CTGCCGTGCACTGCAACAACGCTGCTTCGGCCTGGTAATGGCCCGCCGCTTCCAGCGTTCGACCC  
 AGGCGTTAGGGTCAATGCGGGTTCGCTTCACTTACGCCAATGTCTGTTATCCAGCGGTGCACGGGTGA  
 ACTGATCGCGCAGCGGCGTCAGCAGTTGTTTTTATCGCCAATCCACATCTGTGAAAGAAAGCCTG  
 ACTGGCGGTAAATTGCCAAACGCTTATTACCCAGCTCGATGCAAAAATCCATTCGCTGGTGGTCA  
 GATGCGGGATGGCGTGGGACGCGGCGGGGAGCGTCACACTGAGGTTTTCCGCCAGACGCCACTGCT  
 GCCAGGCGCTGATGTGCCCGGCTTCTGACCATGCGGTTCGCTTCCGTTGCACTACGCGTACTGTGA  
 GGCAGAGTGCCTCCGCGCTTCCGGCTGCGGTAGTTTCAGGCAGTTCAATCAACTGTTTACCTTGTG  
 GAGCGACATCCAGAGGCACCTTCACCGCTTGCCAGCGGCTTACCATCCAGCGCCACCATTCCAGTGCA  
 GGAGCTCGTTATCGCTATGACGGAACAGGTATTTCGCTGGTCACTTCGATGTTTGCCCGGATAAAC  
 GGAAGTGGAAAACTGCTGCTGGTGTGTTTTGCTTCCGTCAGCGCTGGATGCGCGTTCGGTTCGGCAA  
 AGACCAGACCGTTTCATACAGAACTGGCGATCGTTTCGGCGTATCGCCAAAATCACCGCCGTAAGCCG  
 ACCACGGGTTGCCGTTTTTCATCATATTTAATCAGCGACTGATCCACCCAGTCCCAGACGAAGCCGC  
 CCTGTAAACGGGGATACTGACGAAACGCTGCCAGTATTTAGCGAAACCGCCAAGACTGTTACCCA  
 TCGCGTGGGCGTATTCGCAAAGGATCAGCGGGCGCGTCTCTCCAGGTAGCGAAAGCCATTTTTTGA  
 TGGACCATTTCCGGCACAGCCGGAAGGGCTGGTCTTCATCCACGCGCGGTACATCGGGCAAATAA  
 TATCGGTGGCCGTGGTGTGGCTCCGCCGCTTCATACTGCACCGGGCGGGAAGGATCGACAGATT  
 TGATCCAGCGATACAGCGCGTCGTGATTAGCGCGGTGGCTGATTCAATCCCCAGCGACCAGATGA  
 TCACACTCGGGTGATTACGATCGCGCTGCACCATTTCGCTTACGCGTTCGCTCATCGCCGGTAGCC  
 AGCGCGGATCATCGGTTCAGACGATTCAATGGCACCATGCCGTGGGTTTCAATATTGGCTTCATCCA  
 CCACATACAGGCCGTAGCGGTTCGACAGCGTGTACCACAGCGGATGGTTCGGATAATGCGAACAGC  
 GCACGGCGTTAAAGTTGTTCTGCTTCATCAGCAGGATATCCTGCACCATCGTCTGCTCATCCATGA  
 CCTGACCATGCAGAGGATGATGCTCGTGACGGTTAACGCCTCGAATCAGCAACGGCTTGCCGTTCA  
 GCAGCAGCAGACCATTTTCAATCCGCACCTCGCGGAAACCGACATCGCAGGCTTCTGCTTCAATCA  
 GCGTGCCGTTCGGCGGTGTGCAGTTCAACCACCGCACGATAGAGATTCCGGATTTCCGGCGCTCCACA  
 GTTTTCGGGTTTTTCGACGTTGAGACGTAGTGTGACGCGATCGGCATAACCACCACGCTCATCGATAA  
 TTTACCGCCGAAAGGCGCGGTGCCGCTGGCGACCTGCGTTTTACCCCTGCCATAAAGAACTGTGA

Figure 38 cont 2/3

GCAGCACCATCACCGCGAGGCGGTTTTCTCCGGCGCGTAAAAATGCGCTCAGGTCAAATTCAGACG  
GCAAACGACTGTCTGGCCGTAAACCGACCCAGCGCCCGTTGCACCACAGATGAAACGCCGAGTTAA  
CGCCATCAAAAATAATTTCGCGTCTGGCCTTCTGTAGCCAGCTTTCATCAACATTAAATGTGAGCG  
AGTAACAACCCGTGCGATTCTCCGTGGGAACAAACGGCGGATTGACCGTAATGGGATAGGTTACGT  
TGGTGTAGATGGGCGCATCGTAACCGTGCATCTGCCAGTTTGAGGGGACGACGACAGTATCGGCCT  
CAGGAAGATCGCACTCCAGCCAGCTTCCGGCACCGCTTCTGGTGCCGGAACACAGGCAAAGCGCC  
ATTCCGCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCC  
AGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAAGTTGGGTAAACGCCAGGGTTTTCCAGTCAC  
GACGTTGTAAACGACGGGATCTCCCATGCTCGAGTTATGATCTACTTCCCTTACCGTGCAATAAAT  
TAGAATATATTTTCTACTTTTACGAGAAATTAATTATTGTATTTATTATTTATGGGTGAAAACTT  
ACTATAAAAGCGGGTGGGTTTGGGAATTAGTGAAAGCTGGGAGATCTGGCGCGCCTGCAGAGAATT  
CGTTTAAACGGATCCCGAGCTTATTTATATTCCAAAAAATAAAATTTCAATTTTAAAGCT  
GGGGATCCTCTAGAGTCGACCTGCAGGCATGCTCGAGCGGCCCGCAGTGTGATGGATATCTGCAGA  
ATTCCGCTTGGGGGGCTGCAGGTGGATGCGATCATGACGTCCTCTGCAATGGATAACAATGAACCT  
AAAGTACTAGAAATGGTATATGATGCTACAATTTTACCCGAAGGTAGTAGCATGGATTGTATAAAC  
AGACACATCAATATGTGTATACAACGCACCTATAGTTCTAGTATAATTGCCATATTGGATAGATT  
CTAATGATGAACAAGGATGAATAAATAACACAGTGTATATAATTAAAGAATTTATGACATAC  
GAACAAATGGCGATTGACCATTATGGAGAATATGTAAACGCTATTCTATATCAAATTCGTAAAAGA  
CCTAATCAACATCACACCATTAATCTGTTTAAAAAATAAAAAAGAACCCGGTATGACACTTTTAA  
GTGGATCCCGTAGAATTCGTAAAAAAGTTATCGGATTTGTATCTATCTTGAACAAATATAAACCG  
GTTTATAGTTACGTCCTGTACGAGAACGTCCTGTACGATGAGTTCAAATGTTTCATTGACTACGTG  
GAACTAAGTATTTCTAAAATTAATGATGCATTAATTTTGTATTGATTCTCAATCCTAAAACTA  
AAATATGAATAAGTATTAACATAGCGGTGTACTAATTGATTTAACATAAAAAATAGTTGTAACT  
AATCATGAGGACTCTACTTATTAGATATATTCTTTGGAGAAATGACAACGATCAAACCGGGCATGC  
AAGCTTGTCTCCCTATAGTGAGTCGTATTAGAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGT  
GTGAAATTGTTATCCGCTCACAAATCCACACACATACGAGCCGGAAGCATAAAGTGTAAGCCTG  
GGGTGCCATAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCCGCTTTCGAGTCGGG  
AAACCTGTGTCGTGCCAGTCGATTAATGAATCGGCCAACCGCGGGGAGAGGCGGTTTTCGATATTGG  
GCGCTCTCCGCTTCCCTCGCTCACTGACTCGCTGCGCTCGGTGCTTCCGCTGCGGCGAGCGGTATC  
AGCTCACTCAAAGGCGGTAATACGTTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTG  
AGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGCGGTTTTTCGATAGGCT  
CCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACT  
ATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCT  
TACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCAGCTGTAG  
GTATCTCAGTTCCGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCC  
CGACCGCTGCGCCTTATCCGGTAACATATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCC  
ACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTT  
GAAGTGGTGGGCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCC  
AGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGG  
TTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTT  
TTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGAGATTATC  
AAAAAGGATCTTCACCTAGATCCTTTTAAATTAATAATGAAGTTTTAAATCAATCTAAAGTATATA  
TGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCT  
ATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACC  
ATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAAT  
AAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTC  
TATTAATTGTTGCCGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCGAACGTTGTG

Figure 38 cont. 3/3

ACGATCAAGGCGAGTTACATGATCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCC  
GATCGTTGTCAGAAGTAAGTTGGCCGAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTC  
TCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTG  
AGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACA  
TAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTT  
ACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGACCCCACTGATCTTCAGCATCTTTTAC  
TTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGC  
GACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTA  
TTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCAC  
ATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAA  
TAGGCGTATCACGAGGCCCTTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACAT  
GCAGCTCCCGGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGG  
CGCGTCAGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACCTATGCGGCATCAGAGCAGATTGTACT  
GAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGCG  
CCATTGCCCATTGAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACG  
CCAGCTGGCGAAAGGGGGATGTGCTGCAAGCGGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTC  
ACGACGTTGTAAAACGACGGCCAGTGAATTGGATTTAGGTGACACTATAGAATACGAATTC